

## **STATEMENT OF LEGAL AND FACTUAL BASIS FOR TITLE V PERMIT**

### **Minor Modification**

General Shale Brick, Inc.  
Blue Ridge, Virginia  
Permit No. VA-20447

Title V of the 1990 Clean Air Act Amendments required each state to develop a permit program to ensure that certain facilities have federal Air Pollution Operating Permits, called Title V Operating Permits. As required by 40 CFR Part 70 and 9 VAC 5 Chapter 80, General Shale Brick, Inc. has applied for a Title V Operating Permit for its Blue Ridge, Virginia facility and subsequent modification. The Department has reviewed the application and has prepared a Title V Operating Permit significant modification.

Engineer/Permit Contact: \_\_\_\_\_ Date: September 20, 2005

## **FACILITY INFORMATION**

Permittee: General Shale Brick, Inc.  
P. O. Box 3547  
Johnson City, TN 37602

Facility: General Shale Brick, Inc. - Plants 35 & 36  
770 Webster Road  
Blue Ridge, Virginia 24064

AIRS ID No.: 51-023-0006  
Title V Permit #: **VA-20447**  
SIC Code: 3251- Face Brick / Structural Manufacture of brick from shale.

**Title V Effective Date:** June 14, 2001

**Title V Minor Amendment Date:** October 4, 2001

**Title V Significant Modification Date:** March 1, 2005

**Title V Minor Modification Date:** September 14, 2005

**Expiration Date:** June 14, 2006

**INTRODUCTION and BACKGROUND** - General Shale Brick, Inc. received a major source Title V permit dated June 14, 2001 for its Face Brick/ Structural Brick Manufacturing facility located off Route 460 in Blue Ridge, Virginia. The manufacturing process involves shale mining, grinding, screening, and blending of the shale and other raw materials followed by forming, cutting or shaping, drying, firing (or curing), cooling, storage, and shipping of the final product.

## **PERMITTING ACTION – Minor Modification for Title V Permit**

The initial Title V permit was issued / effective June 14, 2001, amended on October 4, 2001 and approved for significant modification on March 1, 2005.

The Title V permit modification application (Virginia Form 805) was submitted simultaneously with minor source amendment applications in order to facilitate the incorporation of minor source permit requirements issued under 9 VAC 5-80-1100. A minor amendment (issued July 5, 2005) to the facility's minor source modification permit dated December 30, 2003 corrects the previous modification application which based the maximum production of Kilns 35 "A" and 35 "B" on net production of Grade A brick, without taking into consideration the brick that is rejected or recycled. The rated capacity of each kiln is corrected from 7.0 tph to 8.2 tph, and corresponding throughput increases from 122,640 tons per year to 143,664 tons per year. Emission limits resulting from the throughput correction are also updated in the modification.. A March 16, 1994 minor source permit for the hammermill and cage mill has also been modified (minor source modification issued July 1, 2005) to include requested increased throughput and corrected emission limits which reflect newer EPA-approved (AP-42) emission factors for the brick manufacturing industry.

### **Modification Summary:**

- Incorporates minor source permit actions (modification for Unit #01-02 – Steele Hammermill-Model 36-24 A and Unit #01-03 - #1 Cage Mill dated July 1, 2005 and amendment to the minor source permit dated December 30, 2003 for Kilns 35 “A” and 35 “B”, effective July 5, 2005).
- Changes brick production limitations for Plant 35 from 122,640 tons per year to 143,664 tons per year, with corresponding corrected emission limitations, in response to the source’s application correction. The corresponding VOC emission factors for the kilns which are fueled with coal / natural gas mix have been updated to reflect newer factors from test data from coal-fired kilns.
- Changes the hammermill and Cage mill throughput from 250,000 tons per year to 285,000 tons per year, in response to the corrected application. The corresponding PM and PM<sub>10</sub> emissions associated with this equipment have been updated to reflect newer, EPA-approved AP-42 emission factors for brick manufacturing.
- Changes State-Only Condition X. A. 3 from an hourly and annual phosphorous ambient air concentration value to a lb/hr and ton/yr value based on modeling results.
- Streamlines previously satisfied conditions or removes erroneous conditions from prior Title V permit.

---

**REGULATORY REVIEW:****PSD Considerations:**

This current permit action is a modification resultant from a minor source permit actions in Virginia’s minor NSR program and did not trigger Major HAP source or PSD considerations.

**MACT APPLICABILITY:**

This modification does not affect the MACT applicability status of Plant 35A and 35B. Each Kiln remains rated at <10 tph, thus by definition a true small kiln for which the MACT standard is not applicable.

**BACT:**

The minor NSR modification amendments do not change any BACT requirements as previously contained in the Title V permit.

**EMISSION CALCULATIONS:**

**Changes in emissions from modification (7.0 tph corrected to to 8.2 tph rated capacity for each Kiln 35A and 35B):**

Amd:	Particulate Matter	26.76 lbs/hr	117.23 tons/yr
Mod:	Particulate Matter	25.20 lbs/hr	110.38 tons/yr
Increase from correction:		1.56 lbs/hr	6.85 tons/yr
Amd:	PM <sub>10</sub>	21.22 lbs/hr	92.95 tons/yr
Mod:	PM <sub>10</sub>	19.60 lbs/hr	85.85 tons/yr
Increase from correction:		1.62 lbs/hr	7.1 tons/yr
Amd:	Sulfur Dioxide	38.92 lbs/hr	170.50 tons/yr
Mod:	Sulfur Dioxide	36.72 lbs/hr	160.80 tons/yr
Increase from correction:		2.2 lbs/hr	9.7 tons/yr
Amd:	Nitrogen Oxides (as NO <sub>2</sub> )	7.84 lbs/hr	34.34 tons/yr
Mod:	Nitrogen Oxides (as NO <sub>2</sub> )	7.14 lbs/hr	31.27 tons/yr
Increase from correction:		0.7 lbs/hr	3.07 tons/yr
Amd:	Carbon Monoxide	19.68 lbs/hr	86.20 tons/yr
Mod:	Carbon Monoxide	16.80 lbs/hr	73.58 tons/yr
Increase from correction:		2.88 lbs/hr	12.62 tons/yr
Amd:	Volatile Organic Compounds	1.13 lbs/hr	4.94 tons/yr
Mod:	Volatile Organic Compounds	0.34 lbs/hr	1.47 tons/yr
Increase from correction:		0.79 lbs/hr	3.47 tons/yr

The kilns are expected to burn an estimated mix of 80% coal / 20% NG, but retain the capacity to be fueled with 100% NG. Particulate (PM and PM<sub>10</sub>) NO<sub>x</sub>, and VOC emission limits were based upon the production rate of 8.2 tph for each kiln using anticipated fuel mix, and annual SO<sub>2</sub> was based on a 1% sulfur content of a max 0.51 ton/hr (4,468 tons/yr) coal burned through each kiln. CO lb/hr and tpy limits are based upon worst-case emission factors for 100% natural gas usage.

Based on increased throughput of crushed stone and updated emission factors for the hammermill and cage mill (Minor NSR permit dated July 1, 2005), Unit #01-02 (Hammermill – Model 36-24 A) limits change from :

	Particulate Matter	6.0 lbs/hr	7.5 tons/yr
	PM <sub>10</sub>	6.0 lbs/hr	7.5 tons/yr
To:	Particulate Matter	3.0 lbs/hr	4.27 tons/yr
	PM <sub>10</sub>	2.76 lbs/hr	3.94 tons/yr

and Unit #01-03 (#1Cage Mill) limits change from:

	Particulate Matter	4.8 lbs/hr	7.5 tons/yr
	PM <sub>10</sub>	4.8 lbs/hr	7.5 tons/yr
To:	Particulate Matter	2.4 lbs/hr	4.27 tons/yr
	PM <sub>10</sub>	2.21 lbs/hr	3.94 tons/yr

**Unit # 07 (Coal Handling System)** - These limits remain unchanged in the modified permit.

Controlled baghouse emission limits are based on the engineering estimate of 0.02 gr/ft<sup>3</sup> and calculated:

$$0.02 \text{ gr/ft}^3 \times 2180 \text{ ft}^3/\text{min} = 43.6 \text{ gr/min}$$

$$43.6 \text{ gr/min} \times 0.00014286 \text{ (grains into pounds AP-42 conversion factor)} = 0.00623 \text{ lb/min}$$

$$0.00623 \text{ lb/min} \times 60 \text{ min/hr} = \mathbf{0.37 \text{ lb/hr}}$$

$$0.37 \text{ lb/hr} \times 8760 \text{ hours/yr} = 3241.2 \text{ lb/yr}$$

$$3241.2 \text{ lb/yr} / 2,000 \text{ lb/ton} = \mathbf{1.62 \text{ tons/yr}}$$

## COMPLIANCE DETERMINATION:

The initial performance test required to verify emissions with BACT in place (and for control of HF for state-only purposes) has been performed on February 23, 2005 (for PM and HF) and on February 24, 2005 (for PM<sub>10</sub> and SO<sub>2</sub>). Proper operation of the DLA, recordkeeping of fuel specifications, throughput, brick production are necessary to determine compliance. Air dispersion modeling for phosphorous has determined compliance status with phosphorous SAAC values.

In addition to stack test compliance demonstrations, continuing compliance may be demonstrated through record keeping using the following equations:

- Particulate emissions:

$$[(\text{total tons brick/month})/(\text{total kiln operating hours/month})] \times \text{AP-42 factor (or more representative emission factor from stack test data)} = \text{lbs/hr}$$

$$(\text{total tons brick/year}) \times \text{AP-42 factor (or more representative emission factor from stack test data)} \times 1 \text{ ton}/2000 \text{ lbs} = \text{tons/yr.}$$

- Sulfur dioxide emissions:

$$[(\% \text{ sulfur in coal}) \times (\text{lbs coal/month})/(\text{total kiln operating hours/month}) \times 2] +$$

$$[(\% \text{ sulfur in shale}) \times (\text{lbs shale/month})/(\text{total kiln operating hours/month}) \times 2] =$$

$$\text{total lbs/hr of SO}_2.$$

$$[(\% \text{ sulfur in coal}) \times (\text{tons coal/yr}) \times 2] + [(\% \text{ sulfur in shale}) \times (\text{tons shale/yr}) \times 2] =$$

$$\text{total tons SO}_2/\text{yr.}$$

- NO<sub>x</sub>, VOC and CO emissions:

$$\begin{aligned} & [(\text{total tons brick/month})/(\text{total kiln operating hours/month})] \times \text{AP-42 factor} = \\ & \text{lbs/hr} \\ & (\text{total tons brick/year}) \times \text{AP-42 factor} \times 1 \text{ ton}/2000 \text{ lbs} = \text{tons/yr.} \end{aligned}$$

**Compliance with Unit #07 (Coal Handling System) Requirements** – Since the system is located in a covered building and the baghouse efficiency is expected to be 99.9% by mfg. Specifications, compliance with baghouse emissions will be verified through good operation of the baghouse and a log of pressure drop readings, etc. No initial VE is required for the baghouse, nor for any loading fugitive dust.

The permit amendment retains the following conditions to ensure compliance:

- Daily, monthly and annual production of brick for Plants 35 and 36. Annual production shall be calculated monthly as the sum of each consecutive 12 month period.
- The annual throughput of shale processed through Unit #01-02 – the Steele Hammermill-Model 36-24 A and Unit #01-03 – the #1 Cage Mill. Annual throughput shall be calculated monthly as the sum of each consecutive 12-month period.
- Daily, monthly and hourly total operating hours of Unit # 04 (Kiln 35 “A”) and Unit # 05 (Kiln 35 “B”). Annual operating hours shall be calculated monthly as the sum of each consecutive 12 month period.
- Hourly and annual consumption of coal and natural gas (or propane as backup fuel) for Plants 35 and 36. Annual consumption shall be calculated monthly as the sum of each consecutive 12- month period.
- All records showing coal specifications for sulfur and ash content of 1% and 6% respectively for use in sulfur dioxide emission calculations, including records of any fuel supplier certifications and fuel analyses.
- All records and analyses of representative sulfur content (%) in shale.
- Emission records of PM, PM<sub>10</sub> from Unit #01-02 – the Steele Hammermill-Model 36-24 A and Unit #01-03 – the #1 Cage Mill using calculation methods approved by the Director, West Central Regional Office to verify compliance with the lb/hr and ton/yr emissions limitations in Condition IV. A. 17 and 18.
- Hourly and annual records of PM, PM<sub>10</sub>, SO<sub>2</sub>, NO<sub>x</sub>, CO and VOC and emissions from Unit # 04 (Kiln 35 “A”) and Unit # 05 (Kiln 35 “B”) using calculation methods approved by the Director, West Central Regional Office to verify compliance with the lb/hr and ton/yr emissions limitations in Condition IV. A. 19.
- Records identifying the relevant, pollutant-specific emission factors used in calculating emissions and

the equations used in the calculations.

- Daily limestone feeder settings of the DLA, purchase records for limestone used in DLA.
  - Operation and control device monitoring records for the baghouse which controls Unit #07 (coal handling system).
  - Scheduled and unscheduled maintenance, and operator training.
  - Results of all stack tests, visible emission evaluations and performance evaluations.
- 

## **STATE-ONLY APPLICABLE REQUIREMENTS**

### **TOXICS LIMITATIONS:**

The July 5, 2005 NSR minor source amendment correction for brick throughput from the kiln necessitated re-evaluation of toxics from coal conversion. The Manganese levels from the increase (6.5 tph to 8.2 tph) remain below exemption levels, the lb/hr and tpy phosphorous levels needed to be evaluated compared to modeling results.

In the Dec. 30, 2003 minor source permit, the source was required to perform modeling for phosphorous in State-Only Condition 5, in order to satisfy the SAAC limits contained in SOE Condition 3. In July 2004, the source performed modeling for phosphorous, which was accepted by DEQ/CO on Aug. 24, 2004, which showed phosphorous concentrations (at maximum throughput) to be below SAAC levels.

In this permit action, the phosphorous limits are included as lbs/hr and tons per year since and remain in the SOE section, since they remain above toxics exemption levels. The emission limits were set using coal-fired brick emission factors from AP-42, Table 11.3-7, at 8.2 tph with a 20% safety factor added.

New limits for the permit are 0.01 lb/hr and 0.42 tpy, based upon factors. There is no requirement for the source to test for phosphorous since modeling shows compliance with the SAAC.

State-Only requirements for HF testing and Phosphorous modeling been streamlined out of the permit and identified as “Condition Satisfied” because the source has performed HF testing (Feb. 23, 2005) and has performed the required phosphorous modeling.

## **STREAMLINED REQUIREMENTS**

***Conditions that have been streamlined from minor source permits and/or Title V permit:***

**Section IV. D – Testing:**

**Stack Test: Initial Compliance Testing for New/Modified Sources** - Initial performance tests shall be conducted for PM, PM<sub>10</sub>, and sulfur dioxide from Units # 04 (Kiln 35 “A”) and # 05 (Kiln 35 “B”) (DLA scrubber stack) using reference methods 5, 201A and 6 respectively (or other as approved by the Department) to determine compliance with the emission limits and control efficiency requirements contained in Conditions IV. A. 5 and 15. The tests shall be performed within 60 days after achieving the maximum production rate at which the facility will be operated but in no event later than 180 days after start-up of the permitted facility. Tests shall be conducted and reported and data reduced as set forth in 9 VAC 5-50-30. The details of the tests are to be arranged with the Director, West Central Regional Office. The permittee shall submit a test protocol at least 30 days prior to testing. One copy of the test results shall be submitted to the Director, West Central Regional Office within 60 days after test completion and shall conform to the test report format enclosed with this permit.

(9 VAC 5-50-30, 9 VAC 5-80-1200 and C. 20 of the 12/30/03 minor source permit as amended 7/5/05)

***(Not included - Condition has been satisfied)***

**Visible Emissions Evaluation: Initial Compliance Testing for New/Modified Sources** - Concurrently with the initial performance tests, visible Emission Evaluations (VEE) in accordance with 40 CFR Part 60, Appendix A, Method 9, shall also be conducted by the permittee on the following equipment: Unit # 04 (Kiln 35 “A”) and Unit # 05 (Kiln 35 “B”). Each test shall consist of 30 sets of 24 consecutive observations (at 15 second intervals) to yield a six minute average. The details of the tests are to be arranged with the Director, West Central Regional Office. The permittee shall submit a test protocol at least 30 days prior to testing. The evaluation shall be performed, reported and demonstrate compliance within 60 days after achieving the maximum production rate at which the facility will be operated but in no event later than 180 days after start-up of the permitted facility. Should conditions prevent concurrent opacity observations, the Director, West Central Regional Office shall be notified in writing, within seven days, and visible emissions testing shall be rescheduled within 30 days. Rescheduled testing shall be conducted under the same conditions (as possible) as the initial performance tests. One copy of the test result shall be submitted to the Director, West Central Regional Office and shall conform to the test report format enclosed with this permit.

(9 VAC 5-50-30, 9 VAC 5-80-1200 and C. 21 of the 12/30/03 minor source permit as amended 7/5/05)

***(Not included - Condition has been satisfied)***

**Section IV. E. – Reporting**



**Initial Notifications** - The permittee shall furnish written notification to the Director, West Central Regional Office:

- The anticipated date of performance tests of Unit # 04 (Kiln 35 “A”) and Unit # 05 (Kiln 35 “B”), postmarked at least 30 days prior to such date.

(9 VAC 5-50-50 and C. 26 of the 12/30/03 minor source permit as amended 7/5/05)

*(Not included - Condition has been satisfied)*

**Initial Notifications** - The permittee shall furnish written notification to the Director, West Central Regional Office:

- a. The actual date on which construction of the bulk material storage silo commenced within 10 days after such date.
- b. The actual start-up date of the bulk material storage silo within 10 days after such date.

(9 VAC 5-50-50 and C. 5 of the 1/4/99 minor source permit as amended 9/25/01)

*(Not included - Condition has been satisfied)*

## **Section X - State-only Enforceable Requirements**

**Stack Test** - Initial performance tests shall be conducted for hydrogen fluoride emissions from Units # 04 (Kiln 35 “A”) and # 05 (Kiln 35 “B”) (DLA scrubber stack) using EPA reference methods or as approved by the Department to determine compliance with the control efficiency requirements contained in State Only Condition 2. The tests shall be performed within 60 days after achieving the maximum production rate at which the facility will be operated but in no event later than 180 days after start-up of the permitted facility. Tests shall be conducted and reported and data reduced as set forth in 9 VAC 5-50-30. The details of the tests are to be arranged with the Director, West Central Regional Office. The permittee shall submit a test protocol at least 30 days prior to testing. One copy of the test results shall be submitted to the Director, West Central Regional Office within 60 days after test completion and shall conform to the test report format enclosed with this permit.

(9 VAC 5-170-160, 9 VAC 5-80-1120 F and State-Only C. 4 of the 12/30/03 minor source permit, as amended 7/5/05)

*(Not included - Condition has been satisfied)*

**Air Dispersion Modeling for Phosphorous** – Before the date of initial start-up of Unit #04 (Kiln 35”A”) and Unit #05 (Kiln 35 “B”), the permittee shall perform air dispersion modeling for ambient air concentrations for

phosphorous, on an hourly and annual basis, to show compliance with the limits set forth in State-Only Condition 3. According to the results of the phosphorous dispersion modeling, this permit will be amended to reflect appropriate limits. The details of the modeling are to be arranged with the Director, West Central Regional Office.

(9 VAC 5-170-160, 9 VAC 5-60-320, 9 VAC 5-60-330, 9 VAC 5-60-350, 9 VAC 5-80-1120 F and State-Only C. 5 of the 12/30/03 minor source permit, as amended 7/5/05)

*(Not included - Condition has been satisfied)*

---

## **FUTURE APPLICABLE REQUIREMENTS**

40 CFR 63 Subpart JJJJ, the Maximum Achievable Control Technology (MACT) Standard for Brick and Structural Clay Products, was promulgated on May 16, 2003 and is incorporated by reference in this permit. This MACT standard applies to the natural gas-fired kiln (Unit #06) at Plant 36. The source has not identified the method by which it will achieve compliance yet; the MACT is presently under review by EPA and the compliance date (presently scheduled to be May 16, 2006) may be postponed.

Compliance Assurance Monitoring (CAM) requirements will be applicable to Unit #07 (coal handling system) upon renewal of the Title V permit. The source is required to submit a CAM plan with the renewal application.

**INSIGNIFICANT EMISSION UNITS** – No change.

**CONFIDENTIAL INFORMATION** - The permittee did not submit a request for confidentiality. All portions of the Title V modification application are suitable for public review.

**PUBLIC PARTICIPATION** - Public notification is not required for a Title V minor modification. Region III of EPA was notified of the complete modification application on July 8, 2005, and the proposed permit was reviewed by EPA for the required 45-day review period from July 28, 2005 through September 12, 2005, with no comments received.

**RECOMMENDATION** - Recommend approval for Title V minor modification.

**Engineer's Signature:** \_\_\_\_\_

**Air Permit Manager Signature:** \_\_\_\_\_

Dr. Michael J. Scanlan  
date

Attachments:

- AP-42 Factors for Brick Kilns – (from Section 11.3)
- Spreadsheets – Plantwide revised emission limits & Plant 35 revised emission limits
- Copies of VaDEQ Minor Permits for General Shale Brick, Inc. - Permits to Construct and Operate dated August 2, 1973, January 4, 1999 as amended September 25, 2001, Permit to Modify and Operate dated July 1, 2005 and Dec. 30, 2003 as amended July 5, 2005.
- General Shale Brick, Inc. Title V Minor Modification Permit Application Information.

**AP-42 Factors for Brick Kilns – (from Section 11.3)**

**Brick Dryer (Table 11.3-1)**

PM	0.077 lb/ton
PM10	0.049 lb/ton
(ND, 63% estimated particle size distribution of total PM for PM10)	

**For NG fired Kiln Table 11.3-2 (SCC3-05-003-11)**

Total PM	0.96 lb/ton
Total PM10	0.87 lb/ton

**Coal-fired kiln Table 11.3-2 (SCC3-05-003-13)**

Total PM (controlled w/ff)	0.63 lb/ton
Total PM10 (controlled w/ff)	0.40 lb/ton
(ND, 63% estimated particle size distribution of total PM for PM10)	

**For NG fired Kiln Table 11.3-3 (SCC3-05-003-11)**

SO <sub>2</sub>	0.67 lb/ton
NO <sub>x</sub>	0.35 lb/ton
CO	1.2 lb/ton

**For NG fired Kiln Table 11.3-4 (SCC3-05-003-11)**

HF	0.37 lb/ton (uncontrolled)
HCl	0.17 lb/ton (uncontrolled)

**For (NG and/or coal) Brick Kiln Table 11.3-5 (SCC3-05-003-11-13)**

TOC	0.062 lb/ton
Methane	0.037 lb/ton
VOC	0.024 lb/ton

**Coal-fired kiln Table 11.3-3 (SCC3-05-003-13)**

SO <sub>2</sub>	1.2 lb/ton
NO <sub>x</sub>	0.51 lb/ton
CO	0.80 lb/ton

**For Coal-fired Kiln Table 11.3-4 (SCC3-05-003-13)**

HF	0.17 lb/ton (uncontrolled)
HCl	N/D lb/ton (uncontrolled)

**Spreadsheets – Plantwide revised emission limits & Plant 35 revised emission limits**

# General Shale Brick - #20447

6/1/2005

04 - 35 "A" Dryer / Kln at Plant 35 - Harrop 8 (brick) wide x 417 feet long fired with coal and natural gas rated at 18.2 MMBtu/hr

05 - 35 "B" Dryer / Kln at Plant 35 - Harrop 8 (brick) wide x 417 feet long fired with coal and natural gas rated at 18.2 MMBtu/hr

06 - InterKiln Tunnel Dryer / Kln at Plant 36 fired with natural gas rated at 25 MMBtu/hr;

KILN	PM		PM10		SO2		NOx		HF		VOC		CO		Total Fluorides		HCL	
	rated capacity tons/hr	rated capacity MMBtu/hr	Natural Gas EF AP-42 11.3.3	lb/hr	tons/yr	Natural Gas EF AP-42 11.3.3	lb/hr	tons/yr	Natural Gas EF AP-42 11.3.3	lb/hr	tons/yr	Natural Gas EF AP-42 11.3.3	lb/hr	tons/yr	Natural Gas EF AP-42 11.3.3	lb/hr	tons/yr	Natural Gas EF AP-42 11.3.3
35A	8.2	18.2	0.96	7.872	34.47936	0.87	7.134	31.24692	0.67	5.494	24.06372	0.35	2.87	12.5706	0.17	1.394	6.10572	0.17
35B	8.2	18.2	0.96	7.872	34.47936	0.87	7.134	31.24692	0.67	5.494	24.06372	0.35	2.87	12.5706	0.17	1.394	6.10572	0.17
36	14.8	25	0.96	14.208	62.23104	0.87	12.876	56.39688	0.67	9.916	43.43208	0.35	5.16	22.6884	0.17	2.516	11.02008	0.17
TOTALS				29.952	131.18976		27.144	118.8907		20.904	91.55952		10.92	47.8296		5.304	23.23152	

## SUMMARY

Total Kiln Potential Emissions		
Pollutant	lb/hr	tons/yr
PM	29.952	131.18976
PM10	27.144	118.89072
SO2	20.904	91.55952
NOx	10.92	47.8296
CO	37.44	163.9872
VOC	0.7488	3.279744
HF	11.544	50.56272
Total Fl-	18.408	80.62704
HCl	5.304	23.23152

## SUMMARY

Total Material Handling Potential Emissions		
Pollutant	lb/hr	tons/yr
PM	23.3071	62.28
PM10	20.33474	49.26
SO2		
NOx		
CO		
VOC		
HF		
Total Fl-		
HCl		

## SUMMARY

Total Plantwide Potential Emissions (NG only - before coal)		
Pollutant	lb/hr	tons/yr
PM	53.2591	193.47
PM10	47.47874	168.15
SO2	20.904	91.55952
NOx	10.92	47.8296
CO	37.44	163.9872
VOC	0.7488	3.279744
HF	11.544	50.56272
Total Fl-	18.408	80.62704
HCl	5.304	23.23152

# General Shale Brick - #20447

June 2005

04 - 35' 2" Driller, Kiln at Plant 35 - Harrop 8 ton/hr. 4.4" x 11" x 22" 1/2" coal and natural gas rates at 18.2 MMBtu/hr

05 - 35' 6" Overhead, Kiln at Plant 35 - Harrop 8 ton/hr. 4.4" x 11" x 22" 1/2" coal and natural gas rates at 18.2 MMBtu/hr

06 - Injection Tunnel Driller, Kiln at Plant 35 - Harrop 8 ton/hr. 4.4" x 11" x 22" 1/2" coal and natural gas rates at 18.2 MMBtu/hr

KILN	Capacity ton/hr	Capacity MMBtu/hr	Worst case	Fuel Rate ton/hr	PM		PM10		SO2 (20% SO2 removal plant 35)		NOx	
					EF AP-42 11.3	lb/hr	EF AP-42 11.3	lb/hr	EF AP-42 11.3	lb/hr	EF AP-42 11.3	lb/hr
35A - N2	8.2	18.2	100.00%	20.00%	0.96	1,574.1	0.87	1,426.8	0.67	1,066.8	0.35	0,574
35B - Coal	8.2	18.2	100.00%	0.51	0.96	1,574.1	0.87	1,426.8	0.67	1,066.8	0.35	0,574
35C - N2	8.2	18.2	100.00%	0.51	0.96	1,574.1	0.87	1,426.8	0.67	1,066.8	0.35	0,574
35D - Coal	8.2	18.2	100.00%	0.51	0.96	1,574.1	0.87	1,426.8	0.67	1,066.8	0.35	0,574
35E - N2	14.8	25	100.00%	100.00%	0.96	14,208	0.87	12,876	0.67	9,916	0.35	5,18
TOTALS					40,9728	179,46086	34,0976	149,3475	48,8336	213,8912	73,0192	57,024096

KILN	Capacity ton/hr	Capacity MMBtu/hr	Worst case	Fuel Rate ton/hr	CO		VOC (1)		HF (90% control for 35A & B)		Total Fluorides (90% control for 35 A & B)		HCL	
					EF AP-42 11.3	lb/hr	EF AP-42 11.3	lb/hr	EF AP-42 11.3	lb/hr	EF AP-42 11.3	lb/hr	EF AP-42 11.3	lb/hr
35A - N2	8.2	18.2	100.00%	20.00%	1.2	9.84	0.024	0.024	0.37	0.3034	0.59	0.4936	0.17	1.394
35B - Coal	8.2	18.2	100.00%	0.51	1.2	9.84	0.024	0.024	0.37	0.3034	0.59	0.4936	0.17	1.394
35C - N2	8.2	18.2	100.00%	0.51	1.2	9.84	0.024	0.024	0.37	0.3034	0.59	0.4936	0.17	1.394
35D - Coal	8.2	18.2	100.00%	0.51	1.2	9.84	0.024	0.024	0.37	0.3034	0.59	0.4936	0.17	1.394
35E - N2	14.8	25	100.00%	100.00%	1.2	17.76	0.024	0.024	0.37	5.476	0.59	8.732	0.17	2.518
TOTALS					37.44	64,978.9	1.4932	6.4978.9	6.0836	25.5476	9.6996	42.484248	5.304	23.23152

## SUMMARY

Total Kiln Potential Emissions at 8.2 tpy (using 20% NG / 80% coal)				Emission Limits from Operation of Kiln 35A and 35B at 8.2 tpy (using 20% NG / 80% coal or worst-case NG)				Total Material Handling Potential Emissions (Coal handling added)				Total Plantwide Potential Emissions (using 20% NG / 80% coal and assumed DLA efficiencies)				Total increased potential emissions from coal conversion at 8.2 tpy Plant 35			
Pollutant	lb/hr	tons/yr		Pollutant	lb/hr	tons/yr		Pollutant	lb/hr	tons/yr		Pollutant	lb/hr	tons/yr		Pollutant	lb/hr	tons/yr	
PM	40,9728	179.460864		PM	26,7848	117.23		PM	23.33	62.37		PM	11,04014	48.35583		PM	11,04014	48.35583	
PM10	34,0976	149.347485		PM10	21,2216	92.9505		PM10	20.34	49.31		PM10	6,963564	30.5005		PM10	6,963564	30.5005	
SO2	48,8336	213.891168		SO2	38,9176	170.459		SO2				SO2	27,9296	122.3316		SO2	27,9296	122.3316	
NOx	13,0192	57.024096		NOx	7,8392	34.3357		NOx				NOx	2,0992	9.194486		NOx	2,0992	9.194486	
CO	37.44	163.9472		CO	19.68	86.1884		CO				CO	0	0		CO	0	0	
VOC	1.49352	6.4978176		VOC	1.12832	4.94704		VOC				VOC	0.73	3.23		VOC	0.73	3.23	
HF	6.0836	26.842664		HF	0.6088	2.65776		HF				HF	-5.4612	-23.92006		HF	-5.4612	-23.92006	
Total Fl.	9.6996	42.484248		Total Fl.	0.9676	4.23809		Total Fl.				Total Fl.	-8.7084	-38.14279		Total Fl.	-8.7084	-38.14279	
HCl	5.304	23.23152		HCl	2.788	12.2114		HCl				HCl	0	0		HCl	0	0	

Notes:

(1) VOC emission factor for coal taken from 1992 EPA test for Johnson City - General Shale (0.08 lb/ton)

(2) SO2 calculated by 20% NG using AP-42 factor and PM10 coal at 0.51 lb/ton SO2 mass balance = 0.51 tons coal burned hourly = 0.51 tons/hr each kiln

(3) 10% DLA efficiency assumed for increased actual emissions. 90% DLA injection removal efficiency assumed for HF actual emissions (tested Feb 2005)

(4) Vertical sulfur content guarantee of 1.0%. Actual maximum sulfur content for General Shale brick plants is approximately 0.6%.



# General Shale Brick - #20447

6/9/2005

Previously installed, permitted equipment at this facility consists of:

- 01-01 ~ (2) Steele primary crushers rated at 75 tons/hr each;
- 01-02 ~ Steele hammermill -- Model 36-24 rated at 100 tons/hr;
- 01-03 ~ #1 cage mill rated at 80 tons/hr;
- 01-07 ~ 75 ton bulk material storage silo rated at 10 tons/hr;
- 03-01 ~ Steele brick machine at Plant 36 rated at 65 tons/hr;
- 03-02 ~ Custom built brick texturing equipment at Plant 36 rated at 2 tons/hr;

Shale has 15 - 20% inherent moisture -

Previously installed, existing equipment at this facility consists of:

- 01-04 ~ (8) Leahy Screens rated at 75 tons/hr;
- 01-05 ~ (11) custom conveyors rated at 7 tons/hr each;
- 02-01 ~ Steele brick machine at Plant 35 rated at 65 tons/hr;
- 02-02 ~ Custom-built brick texturing equipment at Plant 35 rated at 2 tons/hr.

Unit ID	Description	rated cap (tons/hr)	PM EF lb/ton	PM lb/hr	PM tons/yr	PM10 EF	PM10 lb/hr	PM10 tons/yr	source (EF or Permit limit)
01-01	Steele Prim. crusher	75	0.00070	0.0525	0.23	0.00070	0.0525	0.23	AP-42 11.19.2-2
	Steele Prim. crusher	75	0.00070	0.0525	0.23	0.00070	0.0525	0.23	AP-42 11.19.2-2
01-02	Steele Hammermill	100		6.0000	7.50		6.0000	7.50	March 16, 1994 permit, Title V
01-03	#1 Cage Mill	80		4.8000	inc. w/ 01-02		4.8000	inc. w/ 01-02	Cage mill typ emissions included
01-07	Bulk Storage Silo	10	0.0000160	0.0002	0.00	0.0000160	0.0002	0.00	AP-42 11.19.2-2
03-01	Steele Brick Machine	65	0.0250	1.6250	7.12	0.0023	0.1495	0.65	AP-42 11.3-1 wet
03-02	Brick Texturing	2	0.0062	0.0124	0.05	0.0032	0.0064	0.03	AP-42 11.3-1 FF
01-04	(8) Leahy Screens (x8)	75	0.0150	9.0000	39.42	0.0150	9.0000	39.42	AP-42 11.19.2-2
01-05	(11) conveyors (x11)	7	0.0014	0.1078	0.47	0.0014	0.1078	0.47	AP-42 11.19.2-2
02-01	Steele Brick Machine	65	0.0250	1.6250	7.12	0.0023	0.1495	0.65	AP-42 11.3-1 wet
02-02	Brick Texturing	2	0.0062	0.0124	0.05	0.0032	0.0064	0.03	AP-42 11.3-1 FF
EXISTING SOURCE TOTALS				23.31	62.28		20.33	49.26	
Unit ID	Description	rated cap (tons/hr)	PM EF lb/ton	PM lb/hr	PM tons/yr	PM10 EF	PM10 lb/hr	PM10 tons/yr	source (EF or Permit limit)
07	coal handling	2.6	0.0062	0.0193	0.08	0.0032	0.0100	0.04	AP-42 11.3-1 FF (+20% SF)

**June 05 Correction**

Production (tons/hr) worst case: 8.2 (corrected from 6.5 tph)

Potential Pdxn (t/hr)

Controls	Efficiency	Emission Factor	Emissions	Emissions	Emissions Increase
Gas Only (Max grandfathered unit)	(%)	(lb/ton)	lb/hr	(tons/yr)	(tons)
Arsenic	NA	3.10E-05	0.0003	0.0011	NA
Beryllium	NA	4.20E-07	0.0000	0.0000	NA
Manganese	NA	2.90E-04	0.0024	0.0104	NA
Mercury	NA	7.50E-06	0.0001	0.0003	NA

Controls	Efficiency	Emission Factor	Emissions	Emissions	Emissions Increase
Low Sulfur Coal Only @ max pdxn	(%)	(lb/ton)	lb/hr	(tons/yr)	(tons)
<b>Coal modification</b>					
Arsenic	NA	3.10E-05	0.0003	0.0011	0.000
Beryllium	NA	4.20E-07	0.0000	0.0000	0.000
Manganese	NA	1.30E-02	0.1066	0.4669	0.456
Mercury	NA	7.50E-06	0.0001	0.0003	0.000
Phosphorous	NA	9.80E-04	0.0080	0.0352	0.035

Permitting Exemption Analysis	Emissions lb/hr	Emissions tpy	Exemption Level lb/hr	Exemption Level ton/yr	Exempt lb/hr?	Exempt tons/yr?
Manganese	0.1066	0.4669	0.33	0.725	YES	YES
Phosphorous	0.0080	0.0352	0.0066	0.0145	NO	NO

Proposed EMISSION LIMITS (+20% SF)	Emissions lb/hr	Emissions tpy
	lb/hr	ton/yr
Phosphorous	0.0096	0.0422

Phosphorous SAAC	5 micrograms/m3	hourly
	0.2 micrograms/m3	yearly

Phosphorous Modeling Results at 6.5 tph	1.071 micrograms/m3	hourly	< 5 ug/m3
	0.086 micrograms/m3	yearly	< 0.2 ug/m3

Phosphorous Modeling results ratioed to 8.2 tph*	1.621 micrograms/m3	hourly	< 5 ug/m3
	0.130 micrograms/m3	yearly	< 0.2 ug/m3

\*Ratio 8.5 tph divided by 6.5 tph x 20% SF.

## Discussion:

The 2005 correction for brick throughput from the kiln necessitated re-evaluation of toxics from coal conversion. The Manganese levels from the increase (6.5 tph to 8.2 tph) remain below exemption levels, the lb/hr and tpy phosphorous levels needed to be evaluated compared to modeling results. In the Dec. 30, 2003 permit, the source was required to perform modeling for phosphorous in State-Only Condition 5, in order to satisfy the SAAC limits contained in SOE Condition 3. In July 2004, the source performed modeling for phosphorous, which was accepted by DEQ/CQ on Aug. 24, 2004, which showed phosphorous concentrations (at maximum throughput) to be below SAAC levels.

In this permit action, the phosphorous limits are included as lbs/hr and tons per year since and remain in the SOE section, since they remain above toxics exempt levels. The emission limits were set using coal-fired brick emission factors from AP-42, Table 11.3-7, at 8.2 tph with a 20% safety factor added. New limits for the permit are 0.01 lb/hr and 0.42 tpy, based upon factors. There is no requirement for the source to test for phosphorous since modeling shows compliance with the SAAC.

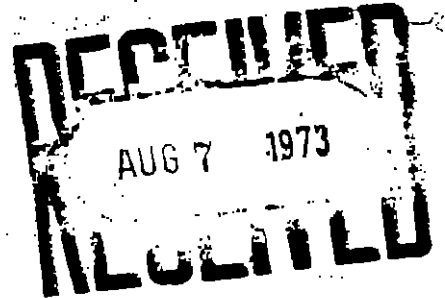
**Copies of VaDEQ Minor Permits for General Shale Brick, Inc. - Permits to Construct and Operate dated August 2, 1973, January 4, 1999 as amended September 25, 2001, Permit to Modify and Operate dated July 1, 2005 and Dec. 30, 2003 as amended July 5, 2005.**

Copies sent to

Richmond \_\_\_\_\_

Barnard \_\_\_\_\_

Weigand 8/7/73



August 2, 1973

Mr. A. M. Harvey, Jr.  
Vice-President, Manufacturing  
Webster Brick Company, Inc.  
P. O. Box 780  
Roanoke, Virginia 24004

Location: Roanoke  
Registration No.: 20447

Dear Mr. Harvey:

The staff of the State Air Pollution Control Board has analyzed your permit submitted in your letter of January 26, 1973 to construct and operate a new manufacturing plant at the above identified location.

Under the authorities delegated to the Executive Director by the Board, the permit submitted by Webster Brick Company, Inc. is approved subject to the following condition:

1. Quarterly progress reports be submitted to the Board and Regional II Director, address below, beginning August 31, 1973 and continue until completion.

You are cautioned that approval of this permit should not be construed to mean your operation is automatically in compliance with all aspects of the Regulations for the Control and Abatement of Air Pollution. Regional personnel will be constantly evaluating all sources for compliance with Section 4.02.00 - Smoke or Other Visible Emissions and Section 4.04.02 - Control of Fugitive Dust. In addition,, yearly up-dating of emissions from sources will require visits from staff personnel. Compliance with all air pollution regulations must be a continuing full time effort.

Mr. A. M. Harvey, Jr.  
August 2, 1973  
Page 2

This permit approval is only applicable to the Air Pollution Control Board - Permit Requirements and does not alter permit requirements by any other governmental agencies.

Sincerely,

W. R. Meyer  
Executive Director

WRM/Kam/asm

cc: Director, Enforcement  
Director, Engineering

Mr. M. S. Williams  
Regional II Director  
State Air Pollution Control Board  
Drawer C, First Street Station  
Radford, Virginia 24141



# COMMONWEALTH of VIRGINIA

## DEPARTMENT OF ENVIRONMENTAL QUALITY

James S. Gilmore, III  
Governor

John Paul Woodley, Jr.  
Secretary of Natural Resources

West Central Regional Office  
3019 Peters Creek Road, Roanoke, Virginia 24019  
Telephone (540) 562-6700, Fax (540) 562-6725  
<http://www.deq.state.va.us>

Dennis H. Treacy  
Director

Richard F. Weeks, Jr.  
Regional Director

September 25, 2001

Mr. Phillip E. Towles  
Environmental Engineer  
General Shale Products, LLC  
PO Box 3547  
Johnson City, TN 37602

Location: Botetourt County  
Registration No: 20447  
County-Plant No: 023 - 0006

Dear Mr. Towles:

Attached is an amendment to the permit dated January 4, 1999 to construct and operate a bulk material storage silo in accordance with the provisions of the Commonwealth of Virginia State Air Pollution Control Board Regulations for the Control and Abatement of Air Pollution. This amendment action is in response to your company's request dated September 10, 2001. Permit changes are reflected on page 2, Conditions 1 and 3. The amended permit page 2 dated September 25, 2001 supersedes your original permit page 2 dated January 4, 2001.

The amended permit contains legally enforceable conditions. Failure to comply may result in a Notice of Violation and civil penalty. Please read all permit conditions carefully.

This permit amendment approval shall not relieve of the responsibility to comply with all other local, state and federal permit regulations. 9 VAC 5-170-200 of the Board's Regulations provides that you may request a formal hearing from this case decision by filing a petition with the Board within 30 days after this case decision notice was mailed or delivered to you. Please consult the relevant regulations for additional requirements for such requests.

Additionally, as provided by Rule 2A:2 of the Supreme Court of Virginia, you have 30 days from the date you actually received this permit amendment or the date on which it was mailed to you, whichever occurred first, by filing a Notice of Appeal with:

Dennis H. Treacy, Director  
Department of Environmental Quality  
P.O. Box 10009

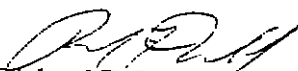
40-0009



In the event that you receive this permit amendment by mail, three days are added to the period in which to file an appeal. Please refer to Part Two A of the Rules of the Supreme Court of Virginia for additional information including filing dates and the required content of the Notice of Appeal.

If you have any questions concerning this permit, please call Tim Overstreet or Pamela Derk at the regional office at 540-562-6700.

Sincerely,

  
Richard F. Weeks, Jr.  
Regional Director

pjd/20447091amd.doc

Attachment: Permit amendment Page 2

cc: Tom Ballou, Director, OAPP (electronic file submission)  
Kirit Chaudhari, Manager, Data Analysis (electronic file submission)  
Patti A. Johnson, Env. Specialist II-Air Data (electronic file submission)  
Steven A. Dietrich, Air Permit Manager, DEQ/WCRO (cover only)  
Pamela J. Derk, DEQ/WCRO Environmental Specialist II – Air Division (w/ attachments)  
Tim Overstreet, DEQ/WCRO Air Com  
Mr. Dave McNees, Plant Manager – General Shale Products, LLC  
file



COMMONWEALTH of VIRGINIA  
DEPARTMENT OF ENVIRONMENTAL QUALITY

James S. Gilmore, III  
Governor  
  
John Paul Woodley, Jr.  
Secretary of Natural Resources

West Central Regional Office  
3019 Peters Creek Road, Roanoke, Virginia 24019  
Telephone (540) 562-6700, Fax (540) 562-6725  
<http://www.deq.state.va.us>

Dennis H. Treacy  
Director  
  
Thomas L. Henderson  
Regional Director

STATIONARY SOURCE PERMIT TO CONSTRUCT AND OPERATE

In compliance with the Federal Clean Air Act and the Commonwealth of Virginia Regulations for the Control and Abatement of Air Pollution.

General Shale Products Corporation  
PO Box 3547  
Johnson City, TN 37602  
Registration No. 20447  
County-Plant No. 023 -0006

is authorized to construct and operate a bulk material storage silo  
located at

General Shale Brick  
770 Webster Rd., Blue Ridge, Botetourt County

in accordance with the Conditions of this permit.

Approved on January 4, 1999.

*Dennis H. Treacy for*  
Dennis H. Treacy  
Director

Permit consists of 4 pages.  
Permit Conditions 1 to 13.



PERMIT CONDITIONS - the regulatory reference and authority for each condition are listed in parentheses ( ) after each condition.

1. Except as specified in this permit, the permitted facility is to be constructed and operated as represented in the permit application dated September 3, 1998, including amendment request information dated September 10, 2001. Any changes in the permit application specifications or any existing facilities which alter the impact of the facility on air quality may require a permit. Failure to obtain such a permit prior to construction may result in enforcement action.  
(9 VAC 5-170-160 of State Regulations)
2. Equipment to be constructed consists of a 20,000 pound per hour bulk material storage silo.
3. Particulate emissions from the bulk material storage silo shall be controlled by a fabric filter. The fabric filter shall be provided with adequate access for inspection.  
(9 VAC 5-80-10 H and 9 VAC 5-50-260 of State Regulations)
4. Visible emissions from the bulk material storage silo fabric filter shall not exceed five percent (5%) opacity as determined by EPA Method 9 (reference 40 CFR 60, Appendix A).  
(9 VAC 5-170-160 and 9 VAC 5-50-20 of State Regulations)
5. The permittee shall furnish written notification to the Director, West Central Region of:
  - a. The actual date on which construction of the bulk material storage silo commenced within 10 days after such date.
  - b. The actual start-up date of the concrete batch plant within 10 days after such date.  
(9 VAC 5-170-160 and 9 VAC 5-50-50 of State Regulations)
6. This permit may be modified or revoked in whole or in part for cause, including, but not limited to, the following:
  - a. Violation of any terms or conditions of this permit;
  - b. Obtaining this permit by misrepresentation or failure to disclose fully all relevant facts;
  - c. A change in any condition that requires either a temporary or permanent reduction or elimination of a permitted discharge; or
  - d. Information that the permitted discharge of any pollutant poses a threat to human health, welfare, or the environment.  
(9 VAC 5-170-160 and 9 VAC 5-80-10 of State Regulations)

7. The permittee shall allow authorized local, state and federal representatives, upon the presentation of credentials:
- To enter upon the permittee's premises on which the facility is located or in which any records are required to be kept under the terms and conditions of this permit;
  - To have access to and copy at reasonable times any records required to be kept under the terms and conditions of this permit or the State Air Pollution Control Board Regulations;
  - To inspect at reasonable times any facility, equipment, or process subject to the terms and conditions of this permit or the State Air Pollution Control Board Regulations; and
  - To sample or test at reasonable times.

For purposes of this condition, the time for inspection shall be deemed reasonable during regular business hours or whenever the facility is in operation. Nothing contained herein shall make an inspection time unreasonable during an emergency.  
(9 VAC 5-170-160 of State Regulations)

8. If, for any reason, the permitted facility or related air pollution control equipment fails or malfunctions and may cause excess emissions for more than one hour, the owner shall notify the Director, West Central Region within four (4) business hours of the occurrence. In addition, the owner shall provide a written statement, within 14 days, explaining the problem, corrective action taken, and the estimated duration of the breakdown/shut down.  
(9 VAC 5-20-180 of State Regulations)

9. In order to minimize the duration and frequency of excess emissions due to malfunctions of process equipment or air pollution control equipment, the permittee shall:

- Develop a maintenance schedule and maintain records of all scheduled and non-scheduled maintenance. These records shall be maintained on site for a period of five (5) years and shall be made available to DEQ personnel upon request.
- Maintain an inventory of spare parts that are needed to minimize the duration of an air pollution control equipment breakdown.

(9 VAC 5-170-160 of State Regulations)

10. This permit shall become invalid if construction of the proposed silo is not commenced within eighteen (18) months of the date of this permit or if it is discontinued for a period of eighteen (18) months.  
(9 VAC 5-80-10 K of State Regulations)

11. In the event of any change in control of ownership of the permitted source, the permittee shall notify the succeeding owner of the existence of this permit by letter and send a copy of that letter to the Director, West Central Region.  
(9 VAC 5-170-160 of State Regulations)
  12. Annual requirements to fulfill legal obligations to maintain current stationary source emissions data will necessitate your prompt response to requests for information to include, as appropriate: fuel consumption by type, heat value, sulfur and ash content; process and production data; refuse disposal by incineration including auxiliary fuels burned; storage, handling and use of liquid organic compounds; and changes in stack data, control equipment, and operating schedules. Such requests for information from the DEQ will either be in writing or by personal contact. The availability of information submitted to the DEQ or the Board will be governed by applicable provisions of the Freedom of Information Act, §§ 2.1-340 through 2.1-348 of the Code of Virginia, § 10.1-1314 (addressing information provided to the Board), and 9 VAC 5-170-60 (formerly § 5-20-150) of the State Air Pollution Control Board Regulations. Information provided to federal officials is subject to appropriate federal law and regulations governing confidentiality of such information.  
(9 VAC 5-20-160 of State Regulations)
  13. A copy of this permit shall be maintained on the premises of the facility to which it applies.  
(9 VAC 5-170-160 of State Regulations)
-



# COMMONWEALTH of VIRGINIA

## DEPARTMENT OF ENVIRONMENTAL QUALITY

W. Taylor Murphy, Jr.  
Secretary of Natural Resources

**West Central Regional Office**  
3019 Peters Creek Road, Roanoke, Virginia 24014  
Telephone (540) 562-6700, Fax (540) 562-6725  
[www.deq.virginia.gov](http://www.deq.virginia.gov)

Robert G. Burnley  
Director

Steven A. Dietrich  
Regional Director

July 1, 2005

Mr. Dave McNees  
Director of Environment  
General Shale Brick, Inc.  
P. O. Box 3547  
Johnson City, Tennessee 37602

Location: Blue Ridge, Botetourt County  
Registration No.: 20447  
County / Plant No.: 023-0006

Dear Mr. McNees:

Enclosed is a minor permit modification of your new source review permit dated March 16, 2004, to modify and operate a Steele Model 36-24 A Hammermill and a Cage Mill at your brick manufacturing facility located at 770 Webster Road in Blue Ridge, Botetourt County, Virginia in accordance with the provisions of the Commonwealth of Virginia State Air Pollution Control Board Regulations for the Control and Abatement of Air Pollution. This modification of the permit to increase throughput and emission limits for Unit #01 was requested in your Title V permit application (Form 805) dated April 29, 2005. This permit supersedes your permit dated March 16, 1994. The increased production allowed in this permit modification should not be implemented until your Title V permit has been modified.

ions. Failure to comply may result in a Notice of Violation and civil penalty. it conditions carefully.

In the course of evaluating the application and arriving at a final decision to approve the project, the Department of Environmental Quality (DEQ) deemed the application complete on June 21, 2005.

This approval to modify and operate shall not relieve General Shale Brick, Inc. of the responsibility to comply with all other local, state, and federal permit regulations.

The Board's Regulations as contained in Title 9 of the Virginia Administrative Code 5-170-200 provide that you may request a formal hearing from this case decision by filing a petition with the Board within 30 days after this case decision notice was mailed or delivered to you. 9 VAC 5-170-180 provides that you may request direct consideration of the decision by the Board if the Director of the DEQ made the decision. Please consult the relevant regulations for additional requirements for such requests.

As provided by Rule 2A:2 of the Supreme Court of Virginia, you have 30 days from the date of service of this decision (the date you actually received this decision or the date on which it was mailed to you, whichever occurred first), within which to initiate an appeal of this decision by a Notice of Appeal with:

Robert G. Burnley, Director  
Department of Environmental Quality  
P. O. Box 10009  
Richmond, VA 23240-0009

In the event that this decision is served on you by mail, three days are added to the period in which to file an appeal. Please refer to Part Two A of the Rules of the Supreme Court of Virginia for information on the required content of the Notice of Appeal and for additional requirements governing appeals from decisions of administrative agencies.

If you have any questions concerning this permit, please call the regional office at 540-562-6700.

Sincerely,

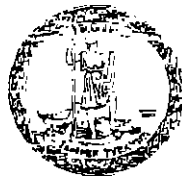


Steven A. Dietrich, P. E.  
Regional Director

SAD:pjd/20447.2005-07-01.nsrmod.cvr

Attachment: Permit

cc: Ms. Martha West, General Shale Brick, Inc. - (electronic  
Monica Harvey, OAPP (electronic file submission)  
Dr. Michael J. Scanlan, Air Permit Manager, DEQ WCRQ (cover only)  
Bob Saunders, Air Compliance Manager, DEQ WCRQ - Tim Overstreet, Air Compliance  
Inspector Sr. (w/attach)  
Pamela J. Derk, Environmental Specialist II - Air Division, DEQ WCRQ (w/attach)  
file



# COMMONWEALTH of VIRGINIA

## DEPARTMENT OF ENVIRONMENTAL QUALITY

W. Taylor Murphy, Jr.  
Secretary of Natural Resources

**West Central Regional Office**  
3019 Peters Creek Road, Roanoke, Virginia 24014  
Telephone (540) 562-6700, Fax (540) 562-6725  
[www.deq.virginia.gov](http://www.deq.virginia.gov)

Robert G. Burnley  
Director

Steven A. Dietrich  
Regional Director

### STATIONARY SOURCE PERMIT TO MODIFY AND OPERATE

This permit includes designated equipment subject to New Source Performance Standards (NSPS) 40 CFR 60, Subpart OOO, Standards of Performance for Mineral Processing Plants.

In compliance with the Federal Clean Air Act and the Commonwealth of Virginia Regulations for the Control and Abatement of Air Pollution,

General Shale Brick, Inc.  
P. O. Box 3547  
Johnson City, TN 37602

Registration No.: 20447  
County / Plant No.: 023-0006

is authorized to modify and operate

Unit # 01-02 - Steele Hammermill-Model 36-24 (100 tons/hr) and  
Unit # 01-03 - #1 Cage Mill (75 - 80 tons/hr) at your structural  
brick manufacturing facility

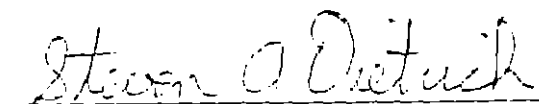
located at

770 Webster Road, Blue Ridge, Boietourt County, Virginia

in accordance with the Conditions of this permit.

Approved on

July 1, 2005.

  
FOR Robert G. Burnley  
Director, Department of Environmental Quality

Permit consists of 9 pages.  
Permit Conditions 1 to 25.  
NSPS Subpart OOO  
Source Testing Report Format.

PERMIT CONDITIONS - the regulatory reference or authority for each condition is listed in parentheses ( ) after each condition.

### APPLICATION

1. Except as specified in this permit, the permitted facility is to be modified and operated as represented in the Title V permit application (Form 805) dated April 29, 2005, including original minor NSR permit applications dated December 14, 1993, including amendment sheet dated February 23, 1994, and in the permit application dated September 24, 1993 including addendum information dated October 29, 1993 for the permit issued on November 24, 1993. Any changes in the permit application specifications or any existing facilities which alter the impact of the facility on air quality may require a permit. Failure to obtain such a permit prior to modification may result in enforcement action.  
(9 VAC 5-50-390 and 9 VAC 5-80-1210 D)

### PROCESS REQUIREMENTS

2. Equipment List - Equipment to be modified at this facility consists of:

Unit # 01-02 - Steele Hammermill-Model 36-24 A (100 tons/hr) (NSPS Subpart OOO)  
Unit # 01-03 - #1 Cage Mill (75 - 80 tons/hr) (NSPS Subpart OOO)

(9 VAC 5-80-1100 A)

3. **Reactivation** - Existing #2 cage mill and 7 existing belt conveyors have been removed and replaced with the Steele Model 36-24A Hammermill. Reactivation of the old replaced units may require a permit.  
(9 VAC 5-80-1100 A)
4. **Fugitive Dust Controls** - Fugitive dust controls shall include the following, or equivalent, as a minimum:
  - a. Dust from material transfers, transfers, transfer, load-outs and traffic areas shall be controlled by adequate enclosure, wet suppression or equivalent (as approved by the DEQ). There shall be no exemption from this requirement due to cold weather. The wet suppression spray systems shall be operated at optimum design.
  - b. All material being stockpiled shall be kept adequately moist to control dust during storage and handling or covered at all times to minimize emissions.
  - c. Dust from haul roads and traffic areas shall be controlled by the application of asphalt, water, suitable chemicals, or equivalent methods approved by the DEQ.

- d. Reasonable precautions shall be taken to prevent deposition of dirt on public roads and subsequent dust emissions. Dirt, product, or raw material spilled or tracked onto paved surfaces shall be promptly removed to prevent particulate matter from becoming airborne.

(9 VAC 5-80-1180, 9 VAC 5-50-260 and 9 VAC 5-50-90)

5. **Emission Control** – Particulate emissions from Unit #01-02 - Steele Hammermill-Model 36-24 A and Unit #01-03 - #1 Cage Mill shall be controlled by wet suppression. The wet suppression spray systems shall be provided with adequate access for inspection.  
(9 VAC 5-50-260)

### **OPERATING/EMISSION LIMITATIONS**

6. **Production** – The yearly production of crushed stone from Unit #01-02 – the Steele Hammermill-Model 36-24 A and Unit #01-03 – the #1 Cage Mill shall not exceed 285,000 tons, calculated monthly as the sum of each consecutive 12 month period.  
(9 VAC 5-80-1180)

7. **Emission Limits** – Particulate emissions from the operation of Unit #01-02 – the Steele Hammermill-Model 36-24 A shall not exceed the limitations specified below:

Particulate Matter	3.0 lb/hr	4.27 tons/yr
PM <sub>10</sub>	2.76 lb/hr	3.94 tons/yr

Annual emissions calculated monthly as the sum of each consecutive 12-month period.

Exceedance of the operating limits shall be considered credible evidence of the exceedance of emission limits. Compliance with these emission limits may be determined as stated in Condition numbers 5, 6 and 9.  
(9 VAC 5-50-260)

8. **Emission Limits** – Particulate emissions from the operation Unit #01-03 – the #1 Cage Mill shall not exceed the limitations specified below:

Particulate Matter	2.4 lb/hr	4.27 tons/yr
PM <sub>10</sub>	2.21 lb/hr	3.94 tons/yr

Annual emissions calculated monthly as the sum of each consecutive 12-month period.

Exceedance of the operating limits shall be considered credible evidence of the exceedance of emission limits. Compliance with these emission limits may be determined as stated in Condition numbers 5, 6 and 9.  
(9 VAC 5-50-260)



9. **Visible Emission Limit** - Visible emissions from Unit #01-02 – the Steele Hammermill-Model 36-24 A and Unit #01-03 – the #1 Cage Mill shall not exceed seven percent (7%) opacity as determined by the EPA Method 9 (reference 40 CFR 60, Appendix A).  
(9 VAC 5-50-80, 9 VAC 5-50-260 and 9 VAC 5-50-410)
10. **Visible Emission Limit** - Visible emissions from other fugitive emission points shall not exceed ten percent (10%) opacity as determined by the EPA Method 9 (reference 40 CFR 60, Appendix A).  
(9 VAC 5-50-80, 9 VAC 5-50-260 and 9 VAC 5-50-410)

### CONTINUING COMPLIANCE DETERMINATION

11. **Visible Emissions Evaluation** - Upon request by the DEQ, the permittee shall conduct additional visible emission evaluations to demonstrate compliance with the  
The details of the tests shall be arranged with the Director, West Central Regional Office.  
(9 VAC 5-50-30 G)
12. **Requirements by Reference** - Except where this permit is more restrictive than the applicable requirement, the NSPS equipment as described in Condition 2 shall be operated in compliance with the requirements of 40 CFR 60, Subpart OOO – *Standards of Performance for Nonmetallic Mineral Processing Plants*.  
(9 VAC 5-80-1180, 9 VAC 5-50-400 and 9 VAC 5-50-410)

### RECORDS

13. **On Site Records** - The permittee shall maintain records of emission data and operating parameters as necessary to demonstrate compliance. The content and format of such records shall be arranged with the Director, West Central Regional Office. These records shall include, but are not limited to:
- a. Monthly and annual throughput of shale processed through Unit #01-02 – the Steele Hammermill-Model 36-24 A and Unit #01-03 – the #1 Cage Mill. Annual throughput shall be calculated monthly as the sum of each consecutive 12 month period.
  - b. Emission records of PM and PM<sub>10</sub> from Unit #01-02 – the Steele Hammermill-Model 36-24 A and Unit #01-03 – the #1 Cage Mill using calculation methods approved by the Director, West Central Regional Office to verify compliance with the lb/hr and ton/yr emissions limitations in Conditions 7 and 8.
  - c. Records identifying the relevant pollutant-specific emission factors used in calculating emissions and the equations used in the calculations.
  - d. Scheduled and unscheduled maintenance and operator training.

- e. Results of all visible emission evaluations and performance evaluations.

These records shall be available for inspection by the DEQ and shall be current for the most recent five years.

(9 VAC 5-50-50)

- 14. **Testing/Monitoring Ports** - The permitted facility shall be constructed so as to allow for emissions testing and monitoring upon reasonable notice at any time, using appropriate methods. This includes constructing the facility such that volumetric flow rates and pollutant emission rates can be accurately determined by applicable test methods and providing stack or duct that is free from cyclonic flow. Test ports shall be provided when requested in accordance with the applicable performance specification (reference 40 CFR Part 60, Appendix B).  
(9 VAC 5-50-30 F)

## **NOTIFICATIONS**

- 15. **Initial Notifications** - The permittee shall furnish written notification to the Director, West Central Regional Office:
  - a. The actual date on which modification of Unit #01-02 – the Steele Hammermill-Model 36-24 A and Unit #01-03 – the #1 Cage Mill commenced within 30 days after such date.
  - b. The anticipated start-up date of Unit #01-02 – the Steele Hammermill-Model 36-24 A and Unit #01-03 – the #1 Cage Mill postmarked not more than 60 days nor less than 30 days prior to such date.
  - c. The actual start-up date of the modified Unit #01-02 – the Steele Hammermill-Model 36-24 A and Unit #01-03 – the #1 Cage Mill postmarked not more than 60 days nor less than 30 days prior to such date.
  - d. The anticipated date of performance tests of Unit #01-02 – the Steele Hammermill-Model 36-24 A and Unit #01-03 – the #1 Cage Mill postmarked at least 30 days prior to such date.

Copies of the written notification referenced in items a through d above are to be sent to:

Associate Director  
Office of Air Enforcement (3AP10)  
U.S. Environmental Protection Agency  
Region III  
1650 Arch Street  
Philadelphia, PA 19103-2029

(9 VAC 5-50-50, VAC 5-50-400 and 9 VAC 5-50-410)

## GENERAL CONDITIONS

16. **Permit Invalidation** - This permit to modify Unit #01-02 - the Steele Hammermill-Model 36-24 A and Unit #01-03 - the #1 Cage Mill shall become invalid, unless an extension is granted by the DEQ, if:
- a. A program of continuous modification is not commenced before the latest of the following:
    - i. 18 months from the date of this permit;
    - ii. Nine months from the date that the last permit or other authorization was issued from any other governmental agency;
    - iii. Nine months from the date of the last resolution of any litigation concerning any such permits or authorization; or
  - b. A program of modification is discontinued for a period of 18 months or more, or is not completed within a reasonable time, except for a DEQ approved period between phases of a phased construction project.

(9 VAC 5-80-1210)

17. **Right of Entry** - The permittee shall allow authorized local, state, and federal representatives, upon the presentation of credentials:
- a. \_\_\_\_\_, located or in which any records are required to be kept under the terms and conditions of this permit;
  - b. To have access to and copy at reasonable times any records required to be kept under the terms and conditions of this permit or the State Air Pollution Control Board Regulations;
  - c. To inspect at reasonable times any facility, equipment, or process subject to the terms and conditions of this permit or the State Air Pollution Control Board Regulations; and
  - d. To sample or test at reasonable times.

For purposes of this condition, the time for inspection shall be deemed reasonable during regular business hours or whenever the facility is in operation. Nothing contained herein shall make an inspection time unreasonable during an emergency.

(4) VAC 5-17(1-130)

18. **Notification for Control Equipment Maintenance** - The permittee shall furnish notification to the Director, West Central Regional Office of the intention to shut down, or bypass, or both, air pollution control equipment for necessary scheduled maintenance, which results in excess emissions for more than one hour, at least 24 hours prior to the shutdown. The notification shall include, but is not following information:

- a. Identification of the air pollution control equipment to be taken out of service, as well as its location, and registration number;
- b. The expected length of time that the air pollution control equipment will be out of service;
- c. The nature and quantity of emissions of air pollutants likely to occur during the shutdown period;
- d. Measures that will be taken to minimize the length of the shutdown or to negate the effect of the outage.

(9 VAC 5-20-180 B)

19. **Notification for Facility or Control Equipment Malfunction** - The permittee shall furnish notification to the Director, West Central Regional Office of malfunctions of the affected facility or related air pollution control equipment that may cause excess emissions for more than one hour, by facsimile transmission, telephone or telegraph. Such notification shall be made as soon as practicable but no later than four daytime business hours after the malfunction is discovered. The permittee shall provide a written statement giving all pertinent facts, including the estimated duration of the breakdown, within two weeks of discovery of the malfunction. When the condition causing the failure or malfunction has been corrected and the equipment is again in operation, the permittee shall notify the West Central Regional Office in writing.

(9 VAC 5-20-180 C)

20. **Violation of Ambient Air Quality Standard** - The permittee shall, upon request of the DEQ, reduce the level of operation or shut down a facility, as necessary to avoid violating any primary ambient air quality standard and shall not return to normal operation until such time as the ambient air quality standard will not be violated.

(9 VAC 5-20-180 D)

21. **Maintenance/Operating Procedures** - The permittee shall take the following measures in order to minimize the duration and frequency of excess emissions, with respect to air pollution control equipment, monitoring devices, and process equipment which affect such emissions:

- a. Develop a maintenance schedule and maintain records of all scheduled and non-scheduled maintenance.
- b. Maintain an inventory of spare parts.
- c. Have available written operating procedures for equipment. These procedures shall be based on the manufacturer's recommendations, at a minimum.
- d. Train operators in the proper operation of all such equipment and familiarize the operators with the written operating procedures. The permittee the names of trainees, the date of training and the nature of the training.

Records of maintenance and training shall be maintained on site for a period of five years and shall be made available to DEQ personnel upon request.  
(9 VAC 5-50-20 E)

**22. Permit Suspension/Revocation** - This permit may be suspended or revoked if the permittee:

- a. Knowingly makes material misstatements in the application for this permit or any amendments to it;
- b. Fails to comply
- c. Fails to comply with any emission standards applicable to the equipment listed in Condition 2;
- d. Causes emissions from this facility which result in violations of, or interferes with the attainment and maintenance of, any ambient air quality standard;
- e. Fails to operate this facility in conformance with any applicable control strategy, including any emission standards or emission limitations, in the State Implementation Plan in effect on the date that the
- f. Fails to modify or operate this facility in accordance with the application for this permit or any amendments to it; or

g.

(9 VAC 5-80-1210)

**23. Change of Ownership** - In the case of a transfer of ownership of a stationary source, the new owner shall abide by any current permit issued to the previous owner. The new owner shall notify the Director, West Central Regional Office of the change of ownership within 30 days of the transfer.  
(9 VAC 5-80-1240)

**24. Registration/Update** - Annual requirements to fulfill legal obligations to maintain current stationary source emissions data will necessitate a prompt response by the permittee to requests by the DEQ or the Board for information to include, as appropriate: process and production data; changes in control equipment; and operating schedules. Such requests for information from the DEQ will either be in writing or by personal contact. The availability of information submitted to the DEQ or the Board will be governed by applicable provisions of the Freedom of Information Act, §§ 2.1-340 through 2.1-348 of the Code of Virginia, § 10.1-1314 (addressing information provided to the Board) of the Code of Virginia, and 9 VAC 5-170-60 of the State Air Pollution Control Board Regulations. Information provided to federal officials is subject to appropriate federal law and regulations governing confidentiality of such information.  
(9 VAC 5-170-60 and 9 VAC 5-20-160)

25. **Permit Copy** - The permittee shall keep a copy of this permit on the premises of the facility to which it applies.  
(9 VAC 5-170-160)

## SOURCE TESTING REPORT FORMAT

### Cover

1. Plant name and location
2. Units tested at source (indicate Ref. No. used by source in permit or registration)
3. Tester, name, address and report date

### Certification

1. Signed by team leader / certified observer (include certification date)
- \* 2. Signed by reviewer

### Introduction

1. Test purpose
2. Test location, type of process
3. Test dates
- \* 4. Pollutants tested
5. Test methods used
6. Observers' names (industry and agency)
7. Any other important background information

### Summary of Results

1. Pollutant emission results / visible emissions summary
2. Input during test vs. rated capacity
3. Allowable emissions
- \* 4. Description of collected samples, to include audits when applicable
5. Discussion of errors, both real and apparent

### Source Operation

1. Description of process and control devices
2. Process and control equipment flow diagram
- 3.

### \* Procedures

1. Sampling port location and dimensioned cross section
2. Sampling point description
3. Sampling train description
4. Brief description of sampling procedures with discussion of deviations from standard methods
5. Brief description of analytical procedures with discussion of deviation from standard methods

### Appendix

- \* 1. Process data and emission results example calculations
2. Raw field data
- \* 3. Laboratory reports
4. Raw production data
- \* 5. Calibration procedures and results
6. Project participants and titles
7. Related correspondence
8. Standard procedures

---

\* Not applicable to visible emission evaluations.

Chemical name	CAS No.
1,4-xylene	106-42-3
xylene (mixed)	1330-20-7
Styrene	576-26-1

\*CAS numbers refer to the Chemical Abstracts Registry numbers assigned to specific chemicals, isomers, or mixtures of chemicals. Some isomers or mixtures that are covered by the standards do not have CAS numbers assigned to them. The standards apply to all of the chemicals listed, whether CAS numbers have been assigned or not.

(55 FF 26942 June 29, 1993, as amended at 60  
FF 58237, 58238, Nov. 27, 1995)

§ 60.668 Delegation of authority.

(a) In delegating implementation and enforcement authority to a State under (1)(C) of the Act the authorities contained in paragraph (b) of this section shall be retained by the Administrator and not transferred to a State

(b) Authorities which will not be delegated to States: § 60.663(e).

### Subpart 000—Standards of Performance for Nonmetallic Mineral Processing Plants

SOURCE: 51 FR 21337, Aug. 1, 1985 unless otherwise noted.

§ 60.670 Applicability and designation  
of affected facility.

(a)(1) Except as provided in paragraphs (a)(2), (b), (c), and (d) of this section, the provisions of this subpart are applicable to the following affected facilities in fixed or portable nonmetallic mineral processing plants: each crusher grinding mill screening operation, bucket elevator belt conveyor, bagging operation storage bin enclosed truck or railroad loading station. Also crushers and grinding mills at hot mix asphalt facilities that reduce the size of nonmetallic materials embedded in recycled asphalt pavement and subsequent affected facilities up to but not including the first storage pile or bin are subject to the provisions of this subpart.

(2) The provisions of this subpart do not apply to the following operations:

- (i) facilities located in underground mines; and
- (ii) stationary screening operations at plants without crushers or grinding mills.

to an affected facility that is subject to the provisions of subpart F or I or that follows in the plant process any



## Environmental Protection Agency

§ 60.670

facility subject to the provisions of subparts F or I of this part is not subject to the provisions of this subpart.

(c) Facilities at the following plants are not subject to the provisions of this subpart:

(1) Fixed sand and gravel plants and crushed stone plants with capacities, as defined in § 60.671, of 23 megagrams per hour (25 tons per hour) or less;

(2) Portable sand and gravel plants and crushed stone plants with capacities, as defined in § 60.671, of 136 megagrams per hour (150 tons per hour) or less; and

(3) Common clay plants and pumice plants with capacities, as defined in § 60.671, of 9 megagrams per hour (10 tons per hour) or less.

(d)(1) When an existing facility is replaced by a piece of equipment of equal or smaller size, as defined in § 60.671, having the same function as the existing facility, the new facility is exempt from the provisions of §§ 60.672, 60.674,

and 60.675 except as provided for in paragraph (d)(3) of this section.

(2) An owner or operator complying with paragraph (d)(1) of this section shall submit the information required in § 60.676(a).

(3) An owner or operator replacing all existing facilities in a production line with new facilities does not qualify for the exemption described in paragraph (d)(1) of this section and must comply with the provisions of §§ 60.672, 60.674 and 60.675.

(e) An affected facility under paragraph (a) of this section that commences construction, reconstruction, or modification after August 31, 1983 is subject to the requirements of this part.

(f) Table 1 of this subpart specifies the provisions of subpart A of this part 60 that apply and those that do not apply to owners and operators of affected facilities subject to this subpart.

TABLE 1—APPLICABILITY OF SUBPART A TO SUBPART 000

Subpart A reference	Applies to Subpart 000	Comment
60.1, Applicability .....	Yes.	
60.2, Definitions .....	Yes.	
60.3, Units and abbreviations .....	Yes.	
60.4, Address:		
(a) .....	Yes.	
(b) .....	Yes.	
60.5, Determination of construction or modification.	Yes.	
60.6, Review of plans .....	Yes.	
60.7, Notification and recordkeeping .....	Yes	Except in (a)(2) report of anticipated date of initial startup is not required (§ 60.676(h)).
60.8, Performance tests .....	Yes	Except in (d), after 30 days notice for an initially scheduled performance test, any rescheduled performance test requires 7 days notice, not 30 days (§ 60.675(p)).
60.9, Availability of information .....	Yes.	
60.10, State authority .....	Yes.	
60.11, Compliance with standards and maintenance requirements.	Yes	Except in (b) under certain conditions (§§ 60.675 (c)(3) and (c)(4)), Method 8 observation may be reduced from 3 hours to 1 hour. Some affected facilities exempted from Method 9 tests (§ 60.675(h)).
60.12, Circumvention .....	Yes.	
60.13, Monitoring requirements .....	Yes.	
60.14, Modification .....	Yes.	
60.15, Reconstruction .....	Yes.	
60.16, Priority list .....	Yes.	
60.17, Incorporations by reference .....	Yes.	
60.18, General control device .....	No	Flares will not be used to comply with the emission limits.
60.19, General notification and reporting requirements.	Yes.	

[51 FR 31337, Aug. 1, 1985, as amended at 62 FR 31359, June 9, 1997]

## § 60.671 Definitions.

All terms used in this subpart but not specifically defined in this section, shall have the meaning given them in the Act and in subpart A of this part.

*Bagging operation* means the mechanical process by which bags are filled with nonmetallic minerals.

*Belt conveyor* means a conveying device that transports material from one location to another by means of an endless belt that is carried on a series of idlers and routed around a pulley at each end.

*Bucket elevator* means a conveying device of nonmetallic minerals consisting of a head and foot assembly which supports and drives an endless single or double strand chain or belt to which buckets are attached.

*Building* means any frame structure with a roof.

*Capacity* means the cumulative rated capacity of all initial crushers that are part of the plant.

*Capture system* means the equipment (including enclosures, hoods, ducts, fans, dampers, etc.) used to capture and transport particulate matter generated by one or more process operations to a control device.

*Control device* means the air pollution control equipment used to reduce particulate matter emissions released to the atmosphere from one or more process operations at a nonmetallic mineral processing plant.

*Conveying system* means a device for transporting materials from one piece of equipment or location to another location within a plant. Conveying systems include but are not limited to the following: Feeders, belt conveyors, bucket elevators and pneumatic systems.

*Crusher* means a machine used to crush any nonmetallic minerals, and includes but is not limited to the following types: jaw, gyratory, cone roll, rod mill, hammermill and impactor.

*Enclosed truck or railcar loading station* means that portion of a nonmetallic mineral processing plant where nonmetallic minerals are loaded by an enclosed conveying system into enclosed trucks or railcars.

*Fixed plant* means any nonmetallic mineral processing plant at which the processing equipment specified in

§ 60.670(a) is attached by a cable, chain, turnbuckle bolt or other means (except electrical connections) to any anchor, slab, or structure including bedrock.

*Fugitive emission* means particulate matter that is not collected by a capture system and is released to the atmosphere at the point of generation.

*Grinding mill* means a machine used for the wet or dry fine crushing of any nonmetallic mineral. Grinding mills include, but are not limited to, the following types: hammer, roller, rod, pebble and ball, and fluid energy. The grinding mill includes the air conveying system, air separator, or air classifier, where such systems are used.

*Initial crusher* means any crusher into which nonmetallic minerals can be fed without prior crushing in the plant.

*Nonmetallic mineral* means any of the following minerals or any mixture of which the majority is any of the following minerals:

(a) Crushed and Broken Stone, including Limestone, Dolomite, Granite, Traprock, Sandstone, Quartz, Quartzite, Marl, Marble, Slate, Shale, Oil Shale, and Shell.

(b) Sand and Gravel.

(c) Clay including Kaolin, Fireclay, Bentonite, Fuller's Earth, Ball Clay, and Common Clay.

(d) Rock Salt.

(e) Gypsum.

(f) Sodium Compounds including Sodium Carbonate, Sodium Chloride and Sodium Sulfate.

(g) Pumice.

(h) Gilsonite.

(i) Talc and Pyrophyllite.

(j) Boron including Borax, Kernite, and Colemanite.

(k) Barite.

(l) Fluorospar.

(m) Feldspar.

(n) Diatomite.

(o) Perlite.

(p) Vermiculite.

(q) Mica.

(r) Pyroxene including Andalusite, Sillimanite, Tremol and Hornblende.

*Nonmetallic mineral processing plant* means any combination of equipment that is used to crush or grind any nonmetallic mineral wherever located including lime plants, power plants, steel mills, asphalt concrete plants, Portland

cement plants, or any other facility processing nonmetallic minerals except as provided in § 60.670 (b) and (c).

*Portable plant* means any nonmetallic mineral processing plant that is mounted on any chassis or skids and may be moved by the application of a lifting or pulling force. In addition, there shall be no cable, chain, turnbuckle, bolt or other means (except electrical connections) by which any piece of equipment is attached or clamped to any anchor, slab, or structure, including bedrock that must be removed prior to the application of a lifting or pulling force for the purpose of transporting the unit.

*Production line* means all affected facilities (crushers, grinding mills, screening operations, bucket elevators, belt conveyors, bagging operations, storage bins, and enclosed truck and railcar loading stations) which are directly connected or are connected together by a conveying system.

*Screening operation* means a device for separating material according to size by passing undersize material through one or more mesh surfaces (screens) in series, and retaining oversize material on the mesh surfaces (screens).

*Size* means the rated capacity in tons per hour of a crusher, grinding mill, bucket elevator, bagging operation, or enclosed truck or railcar loading station; the total surface area of the top screen of a screening operation; the width of a conveyor belt; and the rated capacity in tons of a storage bin.

*Stack emission* means the particulate matter that is released to the atmosphere from a capture system.

*Storage bin* means a facility for storage (including surge bins) or nonmetallic minerals prior to further processing or loading.

*Transfer point* means a point in a conveying operation where the nonmetallic mineral is transferred to or from a belt conveyor except where the nonmetallic mineral is being transferred to a stockpile.

*Truck dumping* means the unloading of nonmetallic minerals from movable vehicles designed to transport nonmetallic minerals from one location to another. Movable vehicles include but are not limited to: trucks, front end loaders, skip hoists, and railcars.

*Vent* means an opening through which there is mechanically induced air flow for the purpose of exhausting from a building air carrying particulate matter emissions from one or more affected facilities.

*Wet mining operation* means a mining or dredging operation designed and operated to extract any nonmetallic mineral regulated under this subpart from deposits existing at or below the water table, where the nonmetallic mineral is saturated with water.

*Wet screening operation* means a screening operation at a nonmetallic mineral processing plant which removes unwanted material or which separates marketable fines from the product by a washing process which is designed and operated at all times such that the product is saturated with water.

[51 FR 31337, Aug. 1, 1985, as amended at 62 FR 31359, June 9, 1997]

**§ 60.672 Standard for particulate matter.**

(a) On and after the date on which the performance test required to be conducted by § 60.8 is completed, no owner or operator subject to the provisions of this subpart shall cause to be discharged into the atmosphere from any transfer point on belt conveyors or from any other affected facility any stack emissions which:

(1) Contain particulate matter in excess of 0.05 g/dscm (0.022 gr/dscf); and

(2) Exhibit greater than 7 percent opacity, unless the stack emissions are discharged from an affected facility using a wet scrubbing control device. Facilities using a wet scrubber must comply with the reporting provisions of § 60.676 (c), (d), and (e).

(b) On and after the sixtieth day after achieving the maximum production rate at which the affected facility will be operated, but not later than 180 days after initial startup as required under § 60.11 of this part, no owner or operator subject to the provisions of this subpart shall cause to be discharged into the atmosphere from any transfer point on belt conveyors or from any other affected facility any fugitive emissions which exhibit greater than 10 percent opacity, except as provided in

paragraphs (c), (d), and (e) of this section.

(c) On and after the sixtieth day after achieving the maximum production rate at which the affected facility will be operated but not later than 180 days after initial startup as required under § 60.11 of this part, no owner or operator shall cause to be discharged into the atmosphere from any crusher at which a capture system is not used fugitive emissions which exhibit greater than 15 percent opacity.

(d) Truck dumping of nonmetallic minerals into any screening operation, feed hopper, or crusher is exempt from the requirements of this section.

(e) If any transfer point on a conveyor belt or any other affected facility is enclosed in a building, then each enclosed affected facility must comply with the emission limits in paragraphs (a), (b) and (c) of this section, or the building enclosing the affected facility or facilities must comply with the following emission limits:

(1) No owner or operator shall cause to be discharged into the atmosphere from any building enclosing any transfer point on a conveyor belt or any other affected facility any visible fugitive emissions except emissions from a vent as defined in § 60.671.

(2) No owner or operator shall cause to be discharged into the atmosphere from any vent of any building enclosing any transfer point on a conveyor belt or any other affected facility emissions which exceed the stack emissions limits in paragraph (a) of this section.

(f) On and after the sixtieth day after achieving the maximum production rate at which the affected facility will be operated but not later than 180 days after initial startup as required under § 60.11 of this part, no owner or operator shall cause to be discharged into the atmosphere from any baghouse that controls emission from only an individual enclosed storage bin stack emissions which exhibit greater than 7 percent opacity.

(g) Owners or operators of multiple storage bins with combined stack emissions shall comply with the emission limits in paragraph (a)(1) and (a)(2) of this section.

(h) On and after the sixtieth day after achieving the maximum produc-

tion rate at which the affected facility will be operated but not later than 180 days after initial startup, no owner or operator shall cause to be discharged into the atmosphere any visible emissions from:

(1) Wet screening operations and subsequent screening operations, bucket elevators and belt conveyors that process saturated material in the production line up to the next crusher, grinding mill or storage bin.

(2) Screening operations, bucket elevators and belt conveyors in the production line downstream of wet mining operations, where such screening operations, bucket elevators, and belt conveyors process saturated materials up to the first crusher, grinding mill, or storage bin in the production line.

[51 FR 31337, Aug. 1, 1986, as amended at 61 FR 31359, June 9, 1997; 65 FR 61778, Oct. 17, 2000]

#### § 60.673 Reconstruction.

(a) The cost of replacement of ore-contact surfaces on processing equipment shall not be considered in calculating either the "fixed capital cost of the new components" or the "fixed capital cost that would be required to construct a comparable new facility" under § 60.15. Ore-contact surfaces are crushing surfaces; screen meshes; bars, and plates; conveyor belts; and elevator buckets.

(b) Under § 60.15, the "fixed capital cost of the new components" includes the fixed capital cost of all depreciable components (except components specified in paragraph (a) of this section) which are or will be replaced pursuant to all continuous programs of component replacement commenced within any 1-year period following August 31, 1983.

#### § 60.674 Monitoring of operations.

The owner or operator of any affected facility subject to the provisions of this subpart which uses a wet scrubber to control emissions shall install, calibrate, maintain and operate the following monitoring devices:

(a) A device for the continuous measurement of the pressure loss of the gas stream through the scrubber. The monitoring device must be certified by the manufacturer to be accurate within a

±250 pascals ±1 inch water gauge pressure and must be calibrated on an annual basis in accordance with manufacturer's instructions.

(b) A device for the continuous measurement of the scrubbing liquid flow rate to the wet scrubber. The monitoring device must be certified by the manufacturer to be accurate within ±5 percent of design scrubbing liquid flow rate and must be calibrated on an annual basis in accordance with manufacturer's instructions.

**§ 60.675 Test methods and procedures.**

(a) In conducting the performance tests required in § 60.8, the owner or operator shall use as reference methods and procedures the test methods in appendix A of this part or other methods and procedures as specified in this section, except as provided in § 60.8(b). Acceptable alternative methods and procedures are given in paragraph (e) of this section.

(b) The owner or operator shall determine compliance with the particulate matter standards in § 60.672(a) as follows:

(1) Method 5 or Method 17 shall be used to determine the particulate matter concentration. The sample volume shall be at least 1.70 dscm (60 dscf). For Method 5, if the gas stream being sampled is at ambient temperature, the sampling probe and filter may be operated without heaters. If the gas stream is above ambient temperature, the sampling probe and filter may be operated at a temperature high enough, but no higher than 121 °C (250 °F), to prevent water condensation on the filter.

(2) Method 9 and the procedures in § 60.11 shall be used to determine opacity.

(c)(1) In determining compliance with the particulate matter standards in § 60.672 (b) and (c), the owner or operator shall use Method 9 and the procedures in § 60.11, with the following additions:

(i) The minimum distance between the observer and the emission source shall be 4.57 meters (15 feet).

(ii) The observer shall, when possible, select a position that minimizes interference from other fugitive emission sources (e.g., road dust). The required observer position relative to the sun

(Method 9, Section 2.1) must be followed.

(11) For affected facilities using wet dust suppression for particulate matter control, a visible mist is sometimes generated by the spray. The water mist must not be confused with particulate matter emissions and is not to be considered a visible emission. When a water mist of this nature is present, the observation of emissions is to be made at a point in the plume where the mist is no longer visible.

(2) In determining compliance with the opacity of stack emissions from any baghouse that controls emissions only from an individual enclosed storage bin under § 60.672(f) of this subpart, using Method 9, the duration of the Method 9 observations shall be 1 hour (ten 6-minute averages).

(3) When determining compliance with the fugitive emissions standard for any affected facility described under § 60.672(b) of this subpart, the duration of the Method 9 observations may be reduced from 3 hours (thirty 6-minute averages) to 1 hour (ten 6-minute averages) only if the following conditions apply:

(i) There are no individual readings greater than 10 percent opacity; and

(ii) There are no more than 3 readings of 10 percent for the 1-hour period.

(4) When determining compliance with the fugitive emissions standard for any crusher at which a capture system is not used as described under § 60.672(c) of this subpart, the duration of the Method 9 observations may be reduced from 3 hours (thirty 6-minute averages) to 1 hour (ten 6-minute averages) only if the following conditions apply:

(i) There are no individual readings greater than 15 percent opacity; and

(ii) There are no more than 3 readings of 15 percent for the 1-hour period.

(d) In determining compliance with § 60.672(e), the owner or operator shall use Method 22 to determine fugitive emissions. The performance test shall be conducted while all affected facilities inside the building are operating. The performance test for each building shall be at least 75 minutes in duration, with each side of the building and the roof being observed for at least 15 minutes.

(e) The owner or operator may use the following as alternatives to the reference methods and procedures specified in this section:

(1) For the method and procedure of paragraph (c) of this section, if emissions from two or more facilities continuously interfere so that the opacity of fugitive emissions from an individual affected facility cannot be read, either of the following procedures may be used:

(i) Use for the combined emission stream the highest fugitive opacity standard applicable to any of the individual affected facilities contributing to the emissions stream.

(ii) Separate the emissions so that the opacity of emissions from each affected facility can be read.

(f) To comply with § 60.676(d), the owner or operator shall record the measurements as required in § 60.676(c) using the monitoring devices in § 60.674 (a) and (b) during each particulate matter run and shall determine the averages.

(g) If, after 30 days notice for an initially scheduled performance test, there is a delay (due to operational problems, etc.) in conducting any rescheduled performance test required in this section, the owner or operator of an affected facility shall submit a notice to the Administrator at least 7 days prior to any rescheduled performance test.

(h) Initial Method 1 performance tests under § 60.11 of this part and § 60.675 of this subpart are not required for:

(1) Wet screening operations and subsequent screening operations, bucket elevators, and belt conveyors that process saturated material in the production line up to, but not including the next crusher grinding mill or storage bin.

(2) Screening operations, bucket elevators, and belt conveyors in the production line downstream of wet mining operations that process saturated materials up to the first crusher grinding mill or storage bin in the production line.

#### § 60.676 Reporting and recordkeeping.

(a) Each owner or operator seeking to comply with § 60.670(d) shall submit to the Administrator the following information about the existing facility being replaced and the replacement piece of equipment:

(1) For a crusher grinding mill, bucket elevator, bagging operation or enclosed truck or railcar loading station:

(i) The rated capacity in megagrams or tons per hour of the existing facility being replaced and

(ii) The rated capacity in tons per hour of the replacement equipment.

(2) For a screening operation:

(i) The total surface area of the top screen of the existing screening operation being replaced and

(ii) The total surface area of the top screen of the replacement screening operation.

(3) For a conveyor belt:

(i) The width of the existing belt being replaced and

(ii) The width of the replacement conveyor belt.

(4) For a storage bin:

(i) The rated capacity in megagrams or tons of the existing storage bin being replaced and

(ii) The rated capacity in megagrams or tons of replacement storage bins.

(b) [Reserved]

(c) During the initial performance test of a wet scrubber and daily thereafter, the owner or operator shall record the measurements of both the change in pressure of the gas stream across the scrubber and the scrubbing liquid flow rate.

(d) After the initial performance test of a wet scrubber, the owner or operator shall submit semiannual reports to the Administrator of occurrences when the measurements of the scrubber pressure loss (or gain) and liquid flow rate differ by more than 10 percent from the averaged (determined during the most recent performance test).

(e) The reports required under paragraph (d) shall be postmarked within 30 days following end of the second and fourth calendar quarters.

(f) The owner or operator of any affected facility shall submit written reports of the results of all performance

tests conducted to demonstrate compliance with the standards set forth in § 60.672 of this subpart, including reports of opacity observations made using Method 9 to demonstrate compliance with § 60.672(b), (c), and (f), and reports of observations using Method 22 to demonstrate compliance with § 60.672(e).

(g) The owner or operator of any screening operation, bucket elevator, or belt conveyor that processes saturated material and is subject to § 60.672(h) and subsequently processes unsaturated materials, shall submit a report of this change within 30 days following such change. This screening operation, bucket elevator, or belt conveyor is then subject to the 10 percent opacity limit in § 60.672(b) and the emission test requirements of § 60.11 and this subpart. Likewise a screening operation, bucket elevator, or belt conveyor that processes unsaturated material but subsequently processes saturated material shall submit a report of this change within 30 days following such change. This screening operation, bucket elevator, or belt conveyor is then subject to the no visible emission limit in § 60.672(h).

(h) The subpart A requirement under § 60.7(a)(2) for notification of the anticipated date of initial startup of an affected facility shall be waived for owners or operators of affected facilities regulated under this subpart.

(i) A notification of the actual date of initial startup of each affected facility shall be submitted to the Administrator.

(1) For a combination of affected facilities in a production line that begin actual initial startup on the same day, a single notification of startup may be submitted by the owner or operator to the Administrator. The notification shall be postmarked within 15 days after such date and shall include a description of each affected facility, equipment manufacturer, and serial number of the equipment, if available.

(2) For portable aggregate processing plants, the notification of the actual date of initial startup shall include both the home office and the current address or location of the portable plant.

(j) The requirements of this section remain in force until and unless the Agency, in delegating enforcement authority to a State under section 111(c) of the Act, approves reporting requirements or an alternative means of compliance surveillance adopted by such States. In that event, affected facilities within the State will be relieved of the obligation to comply with the reporting requirements of this section, provided that they comply with requirements established by the State.

[51 FR 31337, Aug. 1, 1985, as amended at 54 FR 6680, Feb. 14, 1989; 62 FR 31360, June 9, 1997; 65 FR 61778, Oct. 17, 2000]

### Subpart PPP—Standard of Performance for Wool Fiberglass Insulation Manufacturing Plants

SOURCE: 50 FR 7699, Feb. 25, 1985, unless otherwise noted.

#### § 60.680 Applicability and designation of affected facility.

(a) The affected facility to which the provisions of this subpart apply is each rotary spin wool fiberglass insulation manufacturing line.

(b) The owner or operator of any facility under paragraph (a) of this section that commences construction, modification, or reconstruction after February 7, 1984, is subject to the requirements of this subpart.

#### § 60.681 Definitions.

As used in this subpart, all terms not defined herein shall have the meaning given them in the Act and in subpart A of this part.

*Glass pull rate* means the mass of molten glass utilized in the manufacture of wool fiberglass insulation at a single manufacturing line in a specified time period.

*Manufacturing line* means the manufacturing equipment comprising the forming section, where molten glass is fiberized and a fiberglass mat is formed; the curing section, where the binder resin in the mat is thermally "set;" and the cooling section, where the mat is cooled.

*Rotary spin* means a process used to produce wool fiberglass insulation by



# COMMONWEALTH of VIRGINIA

## DEPARTMENT OF ENVIRONMENTAL QUALITY

W. Taylor Murphy, Jr.  
Secretary of Natural Resources

**West Central Regional Office**  
3014 Peters Creek Road, Roanoke, Virginia 24019  
Telephone (540) 562-6700, Fax (540) 562-6725  
[www.deq.virginia.gov](http://www.deq.virginia.gov)

Robert G. Burnley  
Director

Steven A. Dietrich  
Regional Director

July 5, 2005

Mr. Dave McNees  
Director of Environment  
General Shale Brick, Inc.  
P. O. Box 3547  
Johnson City, Tennessee 37602

Location: Blue Ridge, Botetourt County  
Registration No.: 20447  
C / Plant No.: 023-0006

Dear Mr. McNees:

Enclosed is a minor permit amendment to your new source review permit dated December 30, 2003 to modify and operate a brick manufacturing facility by adding a coal handling system and coal burning capabilities to existing Kilns 35A and 35B in accordance with the provisions of the Commonwealth of Virginia State Air Pollution Control Board Regulations for the Control and Abatement of Air Pollution. Permit changes are reflected in Condition 1 on page 2, Condition 10 on page 4, and Condition 16 on page 6. Conditions 20, 21 and 26 on pages 7 and 10 respectively have been identified as "Condition Satisfied". State-Only Condition 3 on page 14 has been changed to reflect lb/hr and ton/yr emission limitations for phosphorous with regard to modeling that has since been performed for phosphorous concentrations, and State-Only Conditions 4 and 5 on page 15 have been identified as "Condition Satisfied". This amended permit supersedes your permit dated December 30, 2003. The increased production allowed in this corrected permit amendment should not be implemented until your Title V permit has been modified.

This permit contains legally enforceable conditions. Failure to comply may result in a Notice of Violation and civil penalty. Please read all permit conditions carefully.

The Department of Environmental Quality (DEQ) reopened this permit in accordance with the provisions of 9 VAC 5-80-1300 and determined that the necessary changes met the requirements of 9 VAC 5-80-1280.4, B and C for a minor amendment. In the course of evaluating the amendment request and arriving at a final decision to approve the request, the Department of Environmental Quality (DEQ) deemed the application complete on May 31, 2005.



This permit amendment approval shall not relieve General Shale Brick, Inc. of the responsibility to comply with all other local, state, and federal permit regulations.

The Board's Regulations as contained in Title 9 of the Virginia Administrative Code 5-170-200 provide that you may request a formal hearing from this case decision by filing a petition with the Board within 30 days after this case decision notice was mailed or delivered to you. 9 VAC 5-170-180 provides that you may request direct consideration of the decision by the Board if the Director of the DEQ made the decision. Please consult the relevant regulations for additional requirements for such requests.

As provided by Rule 2A:2 of the Supreme Court of Virginia, you have 30 days from the date of service of this decision (the date you actually received this decision or the date on which it was mailed to you, whichever occurred first), within which to initiate an appeal of this decision by filing a Notice of Appeal with:

Robert G. Burnley, Director  
Department of Environmental Quality  
P. O. Box 10009  
Richmond, VA 23240-0009

file an appeal. Please refer to Part Two A of the Rules of the Supreme Court of Virginia for information on the required content of the Notice of Appeal and for additional requirements governing appeals from decisions of administrative agencies.

If you have any questions concerning this permit, please call the regional office at 540-562-6700.

Sincerely,

  
Steven A. Dietrich, P. E.  
Regional Director

SAD/pjd/20447.2005-07-05.nsr amd.cvr  
Attachment: Permit

cc: Ms. Martha West, General Shale Brick, Inc.  
Monica Harvey, OAPP (electronic file submission)  
Dr. Michael J. Scanlan, Air Permit Manager, DEQ/WCRO (cover only)  
Bob Saunders, Air Compliance Manager, DEQ/WCRO > Tim Overstreet, Air Compliance  
Inspector Sr. (w/attach)  
Pamela J. Derk, Environmental Specialist II - Air Division, DEQ/WCRO (w/attach)  
file



PERMIT CONDITIONS - the regulatory reference or authority for each condition is listed in parentheses ( ) after each condition.

### **APPLICATION**

1. Except as specified in this permit, the permitted facility is to be modified and operated as represented in the permit application dated August 4, 2003, including addendum information dated October 29, 2003, and the amended permit application dated April 29, 2005, including addendum information dated May 25, 2005. Any changes in the permit application specifications or any existing facilities which alter the impact of the facility on air quality may require a permit. Failure to obtain such a permit prior to modification may result in enforcement action.  
(9 VAC 5-50-390 and 9 VAC 5-80-1210 D)

### **PROCESS REQUIREMENTS**

2. **Equipment List** - Equipment to be modified at this facility consists of:

- 04** - 35 "A" Dryer / Kiln at Plant 35 - Harrop 8 (brick) wide x 417 feet long fired with coal and natural gas rated at 18.2 MMBtu/hr
- 05** - 35 "B" Dryer / Kiln at Plant 35 - Harrop 8 (brick) wide x 417 feet long fired with coal and natural gas rated at 18.2 MMBtu/hr

Equipment to be added at this facility consists of:

- 07** - C.E. Raymond / Custom Coal Processing System rated at 2.6 tons/hr  
(9 VAC 5-80-1100 A)
3. **Emission Controls** - Sulfur dioxide emissions from Unit # 04 (Kiln 35 "A") and Unit # 05 (Kiln 35 "B") shall be controlled by a single Ohlmann type dry lime adsorber (DLA). The shared dry lime adsorber shall be provided with adequate access for inspection and shall be in operation when one/both of the associated kiln(s) is/are operating.  
(9 VAC 5-50-260)
  4. **Emission Controls** - Particulate and sulfur dioxide emissions from Unit # 04 (Kiln 35 "A") and Unit # 05 (Kiln 35 "B") shall be controlled by:
    - a. Installation of target firing reducing solid fuel requirements;
    - b. Operating the dryer/kilns under reduced draft conditions;
    - c. Use of supplemental fuel (natural gas) to reduce solid fuel requirement.

d. Fuel specifications to include low sulfur and ash content of coal.  
(9 VAC 5-50-260)

5. **Emission Controls** – Particulate emissions from Unit # 07 (Coal Processing System) shall be a fabric filter baghouse. The baghouse shall be provided with adequate access for inspection and shall be in operation when the Unit # 07 (Coal Processing System) is operating.  
(9 VAC 5-50-260)

6. **Control Efficiency** - The dry lime adsorber (DLA) controlling emissions from Unit # 04 (Kiln 35 "A") and Unit # 05 (Kiln 35 "B") shall demonstrate a control efficiency by stack test for sulfur dioxide of no less than 10 percent (10%). Subsequent to the initial stack test, this permit may be modified to require the DLA to meet or exceed the control efficiencies established by initial stack test, using similar fuels, operating practices, and lime.  
(9 VAC 5-50-260)

7. **Fugitive Dust Emission Controls** - Fugitive dust emission controls shall include the following, or

- a. Dust from material handling and load-outs, shall be controlled by wet suppression or equivalent (as approved by the DEQ). The wet suppression spray systems shall be operated at optimum design, and shall be installed with adequate access for inspection.
- b. All material being stockpiled shall be kept adequately moist to control dust during storage and handling or covered at
- c. Dust from haul roads and traffic areas shall be controlled by the application of asphalt, water, suitable chemicals, or equivalent methods approved by the DEQ.
- d. Reasonable precautions shall be taken to prevent deposition of dirt on public roads and subsequent dust emissions. Dirt, product, or raw material spilled or tracked onto paved surfaces shall be promptly removed to prevent particulate matter airborne.

(9 VAC 5-50-260, 9 VAC 5-50-20, and 9 VAC 5-50-90)

8. **Monitoring Devices / Observations** – The permittee shall monitor the operational parameters listed below for the dry lime adsorber (DLA) controlling emissions from Unit # 04 (Kiln 35 "A") and Unit # 05 (Kiln 35 "B"):

- a. Maintain pressure drop at or above average pressure established during the initial performance test.

- b. Visually verify limestone hopper and storage bin contains adequate limestone daily.
- c. Record limestone feeder setting daily and maintain at or above level established during the initial performance test.
- d. Use same grade limestone established during the initial performance test. Retain purchase records.
- e. Record visible emissions from the DLA exhaust stack weekly during normal operation of the kiln(s). The visible emissions evaluation (VEE) shall be conducted using 40 CFR 60 Appendix A Method 9 for at least six (6) minutes. 40 CFR 60 Appendix A Method 9 requires the observer to have a Method 9 certification that is current at the time of the VEE. All visible emission observations, VEE results, and corrective actions taken shall be recorded.

Monitoring device(s) shall be installed, maintained, calibrated and operated in accordance with approved procedures that shall include, as a minimum, the manufacturer's written requirements or recommendations. Each monitoring device shall be provided with adequate access for inspection and shall be in operation when the dry lime adsorber is operating.  
(9 VAC 5-80-1180 and 9 VAC 5-50-20 C)

9. **Monitoring Device / Observation** – The fabric filter baghouse controlling PM / PM<sub>10</sub> emissions from Unit # 07 (Coal Processing System) shall be equipped with a magnehelic gauge to continuously measure the differential pressure drop across the fabric filter. The gauge shall be installed, maintained, calibrated and operated in accordance with approved procedures which shall include, as a minimum, the manufacturer's written requirements or recommendations. The magnehelic gauge shall be provided with adequate access for inspection and shall be in operation when the baghouse is operating. The gauge shall be . . . . .  
permittee shall keep a log of the observations from the magnehelic gauge.  
(9 VAC 5-80-1180, 9 VAC 5-50-20 C and 9 VAC 5-50-50-H)

#### **OPERATING/EMISSION LIMITATIONS**

10. **Plant 35 - Plantwide Production** – Plant 35, which is comprised of Unit # 04 (Kiln 35 "A") and . . . . . "B") shall produce no more than 143,664 tons of brick per year, calculated monthly as the sum of each consecutive 12 month period.  
(9 VAC 5-80-1180 and 9 VAC 5-50-260)

11. **Fuel** - The approved fuels for Unit # 04 (Kiln 35 "A") and Unit # 05 (Kiln 35 "B") are coal and natural gas (with propane backup). The kilns may be fired with gas, or a mix of coal with natural gas supplement. A change in the approved fuels may require a permit to modify and operate.  
(9 VAC 5-80-1180)
12. **Fuel Throughput** - For optimum kiln combustion, Unit # 04 (Kiln 35 "A") and Unit # 05 (Kiln 35 "B") shall each consume no more than 1,020 lbs/hr (0.51 tons/hr) of coal, calculated monthly as total pounds (tons) of coal divided by total kiln operating hours; and 4,468 tons of coal per year, calculated monthly as the sum of each consecutive 12 month period.  
(9 VAC 5-80-1180 and 9 VAC 5-50-260)
13. **Fuel Specifications** - The coal, natural gas, and propane used for fuel in Unit # 04 (Kiln 35 "A") and Unit # 05 (Kiln 35 "B") shall meet the specifications below:
- COAL:
- |                                      |      |
|--------------------------------------|------|
| Maximum sulfur content per shipment: | 1.0% |
| Maximum ash content per shipment:    | 6.0% |
- NATURAL GAS:
- |                       |              |
|-----------------------|--------------|
| Minimum heat content: | 1,000 Btu/cf |
|-----------------------|--------------|
- LPG, including butane and propane, which meets ASTM specification D1835.
- (9 VAC 5-80-1180 and 9 VAC 5-50-260)
14. **Fuel Certification** - The permittee fuel supplier with each shipment of coal. Each fuel supplier certification shall include the following:
- The name of the fuel supplier;
  - The date on which the coal shipment was received;
  - The
  - The sulfur content (% sulfur) and ash content (% ash) of the coal;
  - The method(s) used to determine the sulfur content and ash content of the coal.
- (9 VAC 5-170-160 and 9 VAC 5-80-1180)

15. **Coal/Coke Sulfur Content:** If the fuel supplier does not contain sufficient data for coal sulfur content and ash content, a sample of the coal delivered to the kiln burner(s) shall be collected at least once per week and composited for a monthly analysis. The composite shall be analyzed for percent (%) sulfur by weight and percent (%) ash by weight. The analyses shall meet the requirements of ASTM Methods D3177 or D4239 (sulfur content) and ASTM Methods D2795 or D3174 (ash content) or a DEQ approved equivalent method. The approved procedure for collecting the samples shall list all pertinent information regarding sample size and number, where sample is taken, etc. (9 VAC 5-170-160 and 9 VAC 5-80-1180)

16. **Emission Limits: Plant 35** – Total emissions from the operation of Plant 35 kilns - Unit # 04 (Kiln 35 “A”) and Unit # 05 (Kiln 35 “B”) - shall not exceed the limits specified below:

Particulate Matter	26.76 lbs/hr	117.23 tons/yr
PM-10	21.22 lbs/hr	92.95 tons/yr
Sulfur Dioxide	38.92 lbs/hr	170.46 tons/yr
Nitrogen Oxides (as NO <sub>2</sub> )	7.84 lbs/hr	34.34 tons/yr
Carbon Monoxide	19.68 lbs/hr	86.20 tons/yr
Volatile Organic Compounds	1.13 lbs/hr	4.94 tons/yr

Annual emissions calculated monthly as the sum of each consecutive 12-month period.

These emissions are derived from the estimated overall emission contribution from operating limits. Exceedance of the operating limits shall be considered credible evidence of the exceedance of emission limits.

stated in Condition numbers 3, 4, 6, 8, 10, 11, 12, 13, 14, 15 and 18.  
 (9 VAC 5-50-260)

17. **Emission Limits** – Baghouse exhaust emissions from the operation of the Unit # 07 (Coal Processing System) shall not exceed the limits specified below:

Particulate Matter	0.02 gr/dscf	0.37 lb/hr	1.62 tons/yr
PM <sub>10</sub>	0.02 gr/dscf	0.37 lb/hr	1.62 tons/yr

Annual emissions calculated monthly as the sum of each consecutive 12-month period.

These emissions are derived from the estimated overall emission contribution from operating limits. Exceedance limits shall be considered credible evidence of the exceedance of emission limits. be determined as stated in Condition numbers 5, 9 and 19.  
(9 VAC 5-50-260)

18. **Visible Emission Limit** - Visible emissions from Unit # 04 (Kiln 35 "A") and Unit # 05 (Kiln 35 "B") exhaust stacks shall not exceed ten percent (10%) opacity except during one six-minute period in any one hour in which visible emissions shall not exceed twenty percent (20%) opacity as determined by the EPA Method 9 (reference 40 CFR 60, Appendix A). This condition applies at all times except during startup, shutdown, and malfunction.  
(9 VAC 5-50-80 and 9 VAC 5-50-260)
19. **Visible Emission Limit** - Visible emissions from Unit #07 (coal handling system) baghouse exhaust stack shall not exceed five percent (5%) opacity except during one six-minute period in which visible emissions shall not exceed ten percent (10%) opacity as determined by the EPA Method 9 (reference 40 CFR 60, Appendix A). This condition applies at all times except during startup, shutdown, and malfunction.  
(9 VAC 5-50-80 and 9 VAC 5-50-260)

#### **INITIAL COMPLIANCE DETERMINATION**

20. **CONDITION SATISFIED: Stack Test** - Initial performance tests shall be conducted for PM, PM<sub>10</sub>, and sulfur dioxide from Units # 04 (Kiln 35 "A") and # 05 (Kiln 35 "B") (DLA scrubber stack) using reference methods 5, 201A and 6 respectively (or other as approved by the control efficiency requirements contained in Conditions 6 and 16. The tests shall be performed within 60 days after achieving the maximum production rate at which the facility will be operated but in no event later than 180 days after start-up of the permitted facility. Tests shall be conducted and reported and data reduced as set forth in 9 VAC 5-50-30. The details of the tests are to be arranged with the Air Compliance Manager, West Central Regional Office. The permittee shall submit a test protocol at least 30 days prior to testing. One copy of the test results shall be submitted to the Director, West Central Regional Office within 60 days after test completion and shall conform to the test report format enclosed with this permit.  
(9 VAC 5-50-30 and 9 VAC 5-80-1200)
21. **CONDITION SATISFIED: Visible Emissions Evaluation** - Concurrently with the initial performance tests, visible Emission Evaluations (VEE) in accordance with 40 CFR Part 60, Appendix A, Method 9, shall also be conducted by the permittee on the following equipment: Unit # 04 (Kiln 35 "A") and Unit # 05 (Kiln 35 "B"). Each test shall consist of 30 sets of 24 consecutive observations (at 15 second intervals) to yield a six minute average. The details of the tests are to be arranged with the Air Compliance Manager, West Central Regional



Office. The permittee shall submit a test protocol at least 30 days prior to testing. The evaluation shall be performed, reported and demonstrate compliance within 60 days after which the facility will be operated but in no event later than 180 days after start-up of the permitted facility. Should conditions prevent concurrent opacity observations, the Director, West Central Regional Office shall be notified in writing, within seven days, and visible emissions testing shall be rescheduled within 30 days. Rescheduled testing shall be conducted under the same conditions (as possible) as the initial performance tests. the Director, West Central Regional Office and shall conform to the test report format enclosed with this permit. (9 VAC 5-50-30 and 9 VAC 5-80-1200)

### **CONTINUING COMPLIANCE DETERMINATION**

22. **Stack Tests** - tests to demonstrate compliance control efficiency requirements contained in this permit. The details of the tests shall be arranged with the Air Compliance Manager, West Central Regional Office. (9 VAC 5-50-30 G)
23. **Visible Emissions Evaluation** - Upon request by the DEQ, the permittee shall conduct additional visible emission evaluations to demonstrate compliance with the visible emission limits contained in this permit. The details of the tests shall be arranged with the Air Compliance Manager, West Central Regional Office. (9 VAC 5-50-30 G)

### **RECORDS**

24. **On Site Records** - The permittee shall maintain records of emission data and operating parameters as necessary to demonstrate compliance with this permit. The content and format of such records shall be arranged with the Director, West Central Regional Office. These records shall include, but are not limited to:
- a. Daily, monthly and annual production of brick. Annual production shall be calculated monthly as the sum of each consecutive 12 month period.
  - b. Daily, monthly and hourly total operating hours of Unit # 04 (Kiln 35 "A") and Unit # 05 (Kiln 35 "B"). Annual operating hours shall be calculated monthly as the sum of each

- c. Hourly and annual consumption of coal and natural gas (or propane as backup fuel). Annual consumption shall be calculated monthly as the sum of each consecutive 12-month period.
- d. All records showing coal specifications for sulfur and ash content of 1% and 6% respectively for use in sulfur dioxide emission calculations, including records of any fuel supplier certifications and fuel analyses.
- e. All records and analyses of representative sulfur content (%) in shale.
- f. Hourly and annual records of PM, PM<sub>10</sub>, SO<sub>2</sub>, NO<sub>x</sub>, CO and VOC and emissions from Unit # 04 (Kiln 35 "A") and Unit # 05 (Kiln 35 "B") using calculation methods approved by the Air Compliance Manager, West Central Regional Office to verify compliance with the lb/hr and ton/yr emissions limitations in Condition 16.
- g. Records identifying the relevant, pollutant-specific emission factors used in calculating emissions and the equations used in the calculations.
- h. Daily limestone feeder settings of the DLA, purchase records for limestone used in DLA.
- i. Operation and control device monitoring records for the baghouse which controls Unit #07 (coal handling system).
- j. Records of operator training.
- k. Results of all stack tests, visible emission evaluations and performance evaluations.

These records shall be available for inspection by the DEQ and shall be current for the most recent five years.

(9 VAC 5-50-50)

25. **Testing Monitoring Ports** - The permitted facility shall be constructed so as to allow for emissions testing and monitoring upon reasonable notice at any time, using appropriate methods. This includes constructing the facility such that volumetric flow rates and pollutant emission rates can be accurately determined by applicable test methods and providing stack or duct that is free from cyclonic flow. Test ports shall be provided when requested in accordance with the applicable performance specification (reference 40 CFR Part 60, Appendix E).

(9 VAC 5-50-30 F)

## **NOTIFICATIONS**

26. **CONDITION SATISFIED: Initial Notifications** - The permittee shall furnish written notification to the Director, West Central Regional Office:
- a. The actual date on which modification of Unit # 04 (Kiln 35 "A") and Unit # 05 (Kiln 35 "B") and installation of Unit #07 (coal handling system) commenced within 30 days after such date.
  - b. The anticipated start-up date of the modified Unit # 04 (Kiln 35 "A") and Unit # 05 (Kiln 35 "B") and installation of Unit #07 (coal handling system) postmarked not more than 60 days nor less than 30 days prior to such date.
  - c. The actual start-up date of the modified Unit # 04 (Kiln 35 "A" "B") and installation of Unit #07 (coal handling system) within 15 days after such date.
  - d. The anticipated date of performance tests of Unit # 04 (Kiln 35 "A") and Unit # 05 (Kiln 35 "B"), postmarked at least 30 days prior to such date.  
(9 VAC 5-50-50)

## **GENERAL CONDITIONS**

27. **Permit Invalidity** - This permit to modify Unit # 04 (Kiln 35 "A") and Unit # 05 (Kiln 35 "B") and install Unit #07 shall become invalid, unless an extension is granted by the DEQ, if:
- a. the following:
    - i. 18 months from the date of this permit;
    - ii. Nine months from the date that the last permit or other authorization was issued from any other governmental agency;
    - iii. Nine months from the date of the last resolution of any litigation concerning any such permits or authorization; or
  - b. A program of modification is discontinued for a period of 18 months or more, or is not completed within a reasonable time, except for a DEQ approved period between phases of a phased construction project.

(9 VAC 5-80-1210)

28. **Right of Entry** - The permittee shall allow authorized local, state, and federal representatives, upon the presentation of credentials:

- a. To enter upon the permittee's premises on which the facility is located or in which any records are required to be kept under the terms and conditions of this permit;
- b. To have access to and copy at reasonable times any records required to be kept under the terms and conditions of this permit or the State Air Pollution Control Board Regulations;
- c. To inspect at \_\_\_\_\_ facility, equipment, or process subject to the terms and conditions of this permit or the State Air Pollution Control Board Regulations; and
- d. To sample or test at reasonable times.

For purposes of this condition, the time for inspection shall be deemed reasonable during regular business hours or whenever the facility is in operation. Nothing contained herein

(9 VAC 5-170-130)

29. **Notification for Control Equipment Maintenance** - The permittee shall furnish notification to the Director, West Central Regional Office of the intention to shut down or bypass, or both, air pollution control equipment for necessary scheduled maintenance, which results in excess emissions for more than one hour, at least 24 hours prior to the shutdown. The notification shall include, but is not limited to, the following information:

- a. Identification of the air pollution control equipment to be taken out of service, as well as its location, and registration number;
- b. The expected length of time that the air pollution control equipment will be out of service;
- c. The nature and quantity of emissions of air pollutants likely to occur during the shutdown period;
- d. Measures that will be taken to minimize the length of the shutdown or to negate the effect of the outage

(9 VAC 5-20-130 B)

30. **Notification for Facility or Control Equipment Malfunction** - The permittee shall furnish notification to the Director, West Central Regional Office of malfunctions of the affected facility or related air pollution control equipment that may cause excess emissions for more than one hour, by facsimile transmission, telephone or telegraph. Such notification shall be

made as soon as practicable but no later than four daytime business hours after the malfunction is discovered. The permittee shall provide a written statement giving all pertinent facts, including the estimated duration of the breakdown, within two weeks of discovery of the malfunction. When the condition causing the failure or malfunction has been corrected and the equipment is again in operation, the permittee shall notify the West Central Regional Office in writing.(9 VAC 5-20-180 C)

31. **Violation of Ambient Air Quality Standard** - The permittee shall, upon request of the DEQ, reduce the level of operation or shut down a facility, as necessary to avoid violating any primary ambient air quality standard and shall not return to normal operation until such time as the ambient air quality standard will not be violated.  
(9 VAC 5-20-180 I)

32. **Maintenance/Operating Procedures** - The permittee shall take the following measures in frequency of excess emissions, with respect to air pollution control equipment, monitoring devices, and process equipment which affect such emissions:

- a. Develop a maintenance schedule and maintain records of all scheduled and non-scheduled maintenance.
- b. Maintain an inventory of spare parts.
- c. \_\_\_\_\_ equipment. These procedures shall be based on the manufacturer's recommendations, at a minimum.
- d. Train operators in the proper operation of all such equipment and familiarize the operators with the written operating procedures. The permittee shall maintain records of \_\_\_\_\_ provided including the \_\_\_\_\_ of the training.

Records of maintenance and training shall be maintained on site for a period of five years and shall be made available to DEQ personnel upon request.  
(9 VAC 5-50-20 E)

33. **Permit Suspension/Revocation** - This permit may be suspended or revoked if the permittee:
- a. Knowingly makes material misstatements in the application for this permit or any amendments to it;
  - b. Fails to comply with the conditions of this permit;

- c. Fails to comply with any emission standards applicable to the equipment listed in Condition 2;
- d. Causes emissions from this facility which result in violations of, or interferes with the attainment and maintenance of, any ambient air quality standard;
- e. Fails to operate this facility in conformance with any applicable control strategy, including any emission standards or emission limitations, in the State Plan in effect on the date that the application for this permit is submitted;
- f. Fails to modify or operate this facility in accordance with the application for this permit or any amendments to it; or
- g. Allows the permit to become invalid.

(9 VAC 5-80-1210)

34. **Change of Ownership** - In the case of a transfer of ownership of a stationary source, the new owner shall abide by any current permit issued to the previous owner. The new owner shall notify the Director, West Central Regional Office of the change of ownership within 30 days of the transfer.

(9 VAC 5-80-1240)

35. **Registration/Update**

bligations to maintain current stationary source emissions data will necessitate a prompt response by the permittee to requests by the DEQ or the Board for information to include, as appropriate: process and production data; changes in control equipment; and operating schedules. Such requests for information from the DEQ will either be in writing or by personal contact. The availability of information submitted to the DEQ or the Board will be governed by applicable provisions of the Freedom of Information Act, §§ 2.1-340 through 2.1-348 of the Code of Virginia, § 10.1-1314 (addressing information provided to the Board) of the Code of Virginia, and 9 VAC 5-170-60 of the State Air Pollution Control Board Regulations. Information provided to federal officials is subject to appropriate federal law and regulations, including the confidentiality of such information.

(9 VAC 5-170-60 and 9 VAC 5-20-160)

36. **Permit Copy** - The permittee shall keep a copy of this permit on the premises of the facility to which it applies.

(9 VAC 5-170-160)

## STATE-ONLY ENFORCEABLE CONDITIONS

The following terms and conditions are included in this permit to implement the requirements of 9 VAC 5-60-300 et seq. and are not required under the federal Clean Air Act or under any of its applicable federal requirements. Neither their inclusion in this minor new/modified source review permit nor any subsequent public comment period make these terms federally enforceable.

1. **Emission Controls** – Hydrogen fluoride emissions from Unit # 04 (Kiln 35 “A”) and Unit # 05 (Kiln 35 “B”) shall be controlled by a single Ohlmann type dry lime adsorber (DLA). The shared dry lime adsorber shall be provided with adequate access for inspection and shall be in operation when one/both of the associated kiln(s) is/are operating.  
(9 VAC 5-170-160 and VAC 5-80-1120 F)
2. **Control Efficiency** - The dry lime adsorber (DLA) controlling emissions from Unit # 04 (Kiln 35 “A”) and Unit # 05 (Kiln 35 “B”) shall demonstrate a control efficiency by stack test for hydrogen fluoride of no less than 90 percent (90%). Subsequently to the initial stack test, this permit may be modified to require the DLA to meet or exceed the control efficiencies established by initial stack test, using similar fuels, operating practices, and lime.  
(9 VAC 5-170-160 and 9 VAC 5-80-1120 F)

## OPERATING/EMISSION LIMITATIONS

3. **Emission Limits: Plant 35** – Total phosphorous emissions from the operation of Plant 35 kilns - Unit # 04 (Kiln 35 “A”) and Unit # 05 (Kiln 35 “B”) - specified below:

Phosphorous	0.01 lb/hr	0.42 tons/yr
-------------	------------	--------------

Annual emissions calculated monthly as the sum of each consecutive 12-month period.

These emissions are derived from the estimated overall emission contribution from operating limits.

exceedance of emission limits. Compliance with these emission limits may be determined as stated in Condition numbers 10, 11, 12, 13, 14, 15 and State-Only Condition 5.  
(9 VAC 5-170-160, 9 VAC 5-60-320, 9 VAC 5-80-1120 F and 9 VAC 5-80-1180C)

### COMPLIANCE DEMONSTRATION

4. **CONDITION SATISFIED: Stack Test** - Initial performance tests shall be conducted for hydrogen fluoride emissions from Units # 04 (Kiln 35 "A") and # 05 (Kiln 35 "B") (DLA scrubber stack) using EPA reference methods or as approved by the Department to determine compliance with the control efficiency requirements contained in State Only Condition 2. The tests shall be performed within 60 days after achieving the maximum production rate at which the facility will be operated but in no event later than 180 days after start-up of the permitted facility. Tests shall be conducted and reported and data reduced as set forth in 9 VAC 5-50-30. The details of the tests are to be arranged with the Air Compliance Manager, West Central Regional Office. The permittee shall submit a test protocol at least 30 days prior to testing. One copy of the test results shall be \_\_\_\_\_ West Central Regional Office within 60 days after test completion and shall conform to the test report format enclosed with this permit.  
(9 VAC 5-170-160 and 9 VAC 5-80-1120 F)
5. **CONDITION SATISFIED: Air Dispersion** - \_\_\_\_\_ **for Phosphorous** - Before the date of \_\_\_\_\_ up of Unit #04 (Kiln 35 "A") and Unit #05 (Kiln 35 "B"), the permittee shall perform air dispersion modeling for ambient air concentrations for phosphorous, on an hourly and annual basis, to show compliance with the limits set forth in State-Only Condition 3. According to the results of the phosphorous dispersion modeling, this permit will be amended to reflect appropriate limits. The details of the modeling are to be arranged with the Air Compliance Manager, West Central Regional Office.  
(9 VAC 5-170-160, 9 VAC 5-60-320, 9 VAC 5-60-330, 9 VAC 5-60-350 and 9 VAC 5-80-1120 F)

### RECORDS

6. **On Site Records** - The permittee shall maintain records of \_\_\_\_\_ of \_\_\_\_\_ to demonstrate compliance with this permit. The content and format of such records shall be arranged with the Air Compliance Manager, West Central Regional Office. These records shall include, but are not limited to:
- Records identifying the relevant phosphorous and HF emission factors used in calculating emissions and the equations used in the calculations.
  - Results of stack tests for hydrogen fluoride and air dispersion modeling for phosphorous emissions.

(9 VAC 5-170-160, 9 VAC 5-60-300 and 9 VAC 5-80-1120 F)



## SOURCE TESTING REPORT FORMAT

### Cover

1. Plant name and location
2. Units tested at source (indicate Ref. No. used by source in permit or registration)
3. Tester; name, address and report date

### Certification

1. Signed by team leader / certified observer (include certification date)
- \* 2. Signed by reviewer

### Introduction

1. Test purpose
2. Test location, type of process
3. Test dates
- \* 4. Pollutants tested
5. Test methods used
6. Observers' names (industry and agency)
7. Any other important background information

### Summary of Results

1. Pollutant emission results / visible emissions summary
2. Input during test vs. rated capacity
3. Allowable emissions
- \* 4. Description of collected samples, to include audits when applicable
5. Discussion of errors, both real and apparent

### Source Operation

1. Description of process and control devices
2. Process and control equipment flow diagram
3. Process and control equipment data

### \* Sampling and Analysis Procedures

1. . . . .
2. Sampling point description
3. Sampling train description
4. Brief description of sampling procedures with discussion of deviations from standard methods
5. Brief description of analytical procedures with discussion of deviation from standard methods

### Appendix

- \* 1. Process data and emission results example calculations
2. Raw field data
- \* 3. Laboratory reports
4. Raw production data
- \* 5. Calibration procedures and results
6. Project participants and titles
7. Related correspondence
8. Standard procedures

---

\* Not applicable to visible emission evaluations.

**General Shale Brick, Inc. Title V Minor Modification Permit Application  
Information.**

COMMONWEALTH OF VIRGINIA  
Department of Environmental Quality



RECEIVED

MAY 02 2005

DEQ-WCRO

AIR OPERATING PERMIT APPLICATION

General Information

CHECK ALL FORMS THAT APPLY AND LIST ALL ATTACHED DOCUMENTS.  
For each page, indicate in the blank the quantity of copies attached.

- 1 CONTENTS, and DOCUMENT CERTIFICATION, this page
- 1 GENERAL INFORMATION, page 1
- 2 GENERAL INFORMATION, *continued*, page 2
- FUEL-BURNING EQUIPMENT, etc., page 3
- 1 PROCESSING, etc., page 4
- VOCs in INKS, COATINGS, STAINS, and ADHESIVES, page 5
- HAPs in INKS, COATINGS, STAINS, and ADHESIVES, page 6
- INCINERATORS for LIQUID and/or SOLID WASTE, page 7
- LOADING RACKS and OIL-WATER SEPARATORS, page 8
- 1 STACK/FUGITIVE EMISSIONS PARAMETERS, page 9
- 1 AIR POLLUTION CONTROL EQUIPMENT, page 10
- 1 AIR POLLUTION CONTROL/SUPPLEMENTAL INFORMATION, page 11
- 3 ANNUAL AIR POLLUTANT EMISSIONS, page 12
- 1 POLLUTANTS for which THIS SOURCE is MAJOR, page 13
- 2 APPLICABLE REQUIREMENTS, Page 1 of 3, page 14
- 1 APPLICABLE REQUIREMENTS, Page 2 of 3, page 15
- 1 APPLICABLE REQUIREMENTS, Page 3 of 3, page 16
- STREAMLINING APPLICABLE REQUIREMENTS, page 17

- INSIGNIFICANT EMISSION UNITS/ACTIVITIES, page 18
- COMPLIANCE CERTIFICATION, Page 1 of 3, page 19
- COMPLIANCE CERTIFICATION, Page 2 of 3, page 20
- COMPLIANCE CERTIFICATION, Page 3 of 3, page 21
- POTENTIAL to EMIT *WORKSHEET*, Optional page 1
- INSIGNIFICANT ACTIVITIES *WORKSHEET*, Optional page 2
- REQUIREMENTS that do not APPLY, Optional page 3
- VOC/PETROLEUM LIQUID STORAGE TANKS *WORKSHEET*,  
Optional pages 4-6

LIST ATTACHED DOCUMENTS:

- MAP     FACILITY SITE PLAN     PROCESS FLOW DIAGRAM/SCHEMATIC
- MSDS ✓ SAMPLE EMISSIONS CALCULATIONS     STACK TESTS
- SUGGESTED DRAFT PERMIT     LISTING OF CROSS-REFERENCES
- STATEMENT AND VERIFICATION OF CONFIDENTIAL INFORMATION
- CAM PLAN FOR COAL PROCESSING SYSTEM (Attached)
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_

DOCUMENT CERTIFICATION FORM

(see other side for instructions)

I certify under penalty of law that this document and all attachments [as noted above] were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering and evaluating the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

SIGNATURE: \_\_\_\_\_

DATE: 4/29/2005

COMPANY: General Shale Brick, Inc.

PRINTED NAME: Dave McNees

REGISTRATION NUMBER: 20447

TITLE: Director of Environment

TELEPHONE NUMBER: (423) 282-4661

Reference: Regulations, 9 VAC 5-80-80.G). See reverse of this form for instructions.  
DEQ Form 805 7/2/04

COMMONWEALTH OF VIRGINIA, DEPARTMENT OF ENVIRONMENTAL QUALITY  
**TITLE V AIR OPERATING PERMIT APPLICATION GENERAL INFORMATION:**

DATE	REGISTRATION NUMBER	AIRS IDENTIFICATION NUMBER
4/29/2005	20447	51-023-0006 <b>RECEIVED</b>

**TITLE V PERMIT ACTION SOUGHT** (Note: see instructions for this page):

☐ INITIAL OPERATING PERMIT

MAY 02 2005

☐ RENEWAL OF OPERATING PERMIT (current permit expiration date: \_\_\_\_\_)

DEQ-WCRO

☐ SIGNIFICANT PERMIT MODIFICATION -- describe: \_\_\_\_\_

☒ MINOR PERMIT MODIFICATION -- describe: Plant throughput capacity was understated in the original application. This modification is to correct the Kiln capacities of Plant 35 and the corresponding capacity for the Grinding Room.

☐ Administrative Permit Amendment (Includes change of address; for ownership change, please contact the appropriate DEQ Regional Office for information needed.)

SOURCE/FACILITY NAME: General Shale Brick, Inc. - Roanoke	PARENT COMPANY, IF ANY: Wienerberger
--	---

OWNER AND MAILING ADDRESS:  
General Shale Brick, Inc., P.O. Box 3547, Johnson City, TN 37602

OPERATOR AND MAILING ADDRESS, if different from owner:  
Same

TELEPHONE NUMBER: (423)282-4661	UNDERLINE OR CIRCLE THE NAMES OF OTHER STATES AND/OR THE DISTRICT OF COLUMBIA WITHIN 50 MILES OF YOUR FACILITY (if any): <u>WV</u> PA MD DC DE NC TN KY	FEDERAL TAX ID NUMBER: 62-0211290
------------------------------------	--	--------------------------------------

EXACT SOURCE LOCATION - INCLUDE NAME OF CITY (COUNTY) AND FULL STREET ADDRESS OR DIRECTIONS:

770 Webster Road, Blue Ridge, VA 24064 (Route 738, ± 2 miles E of Rte 460) Botetourt County

PERSON TO CONTACT ON AIR POLLUTION MATTERS - NAME AND TITLE: Martha West, Environmental Engineer	PHONE NUMBER: (423)952-4240
	FAX NUMBER, IF AVAILABLE: (423)952-4160
	INTERNET E-MAIL, IF AVAILABLE: mwest@generalshale.com

IS THE FACILITY TO BE PERMITTED AS A PORTABLE PLANT? YES ☐ NO ☒ IF YES, ATTACH FIRST LOCATION FOR ITS OPERATION.

DESCRIBE THE PRODUCTS MANUFACTURED AND/OR SERVICES PERFORMED AT THIS FACILITY (use attachments if necessary):

Face brick is manufactured at this facility

LIST THE STANDARD INDUSTRIAL CLASSIFICATION (SIC) CODE(S) FOR THE FACILITY:

3	2	5	1																
---	---	---	---	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

LIST THE NORTH AMERICAN INDUSTRY CLASSIFICATION SYSTEM (NAICS) CODE(S) FOR THE FACILITY:

3	2	7	1	2	1														
---	---	---	---	---	---	--	--	--	--	--	--	--	--	--	--	--	--	--	--

COMMONWEALTH OF VIRGINIA, DEPARTMENT OF ENVIRONMENTAL QUALITY  
TITLE V AIR OPERATING PERMIT APPLICATION GENERAL INFORMATION, continued:

COMPANY NAME	DATE	REGISTRATION NUMBER
General Shale Brick, Inc.	4/29/2005	20447

**Cross-referenced information.** Does this application cross-reference information from other applications or documents?  
☐ YES ☒ NO If "yes," please cite, on a separate sheet, the documents to which reference was made; attach copies of any documents referenced which are not currently on file at DEQ.

**Process description** (also attach a process flow diagram)

**Products and SIC Code or NAICS Code**

General Shale Brick, Inc. is a manufacturer of face brick covered by Standard Industrial Classification (SIC) Code 3251.

RECEIVED

MAY 02 2005

DEQ-WCRO

**Process**

Shale Preparation (01)

**Process Steps**

Raw shale is delivered from a stockpile to a hopper by a wheel loader, then crushed, ground, screened to the appropriate size gradation, and conveyed to storage. This process provides the material for both plants 35 and 36 brick making.

**Emission units**

2) Steele Primary Crushers – 1973, Steele Hammermill – Model 36-24 – 1994, #1 Cage Mill – 1994, (8) Leahy Screens – inside, (11) Custom belt conveyors (various capacities) – inside, Bulk Material Storage Silo (33'-7" x 10') – 1999. This process is in an enclosed building and the material contains 15-20% inherent moisture

**Emission Unit Description**

(Above)

**Alternative Operating Scenarios.**

☐ Check here if you are applying for Alternative Operating Scenarios with respect to part or all of your facility. Please read "Overall instructions for alternative operating scenarios" on the back of this page. Alternative operating scenarios may be described within the form or on duplicate form pages (see instructions), or on separate sheets.

**Acid Rain Sources.**

☐ Check here if your facility is an Acid Rain source subject to the provisions of Rule 6-7 (9 VAC 5-80-360 through 5-80-700) of the Regulations and to Title IV of the Clean Air Act. Please attach the separate EPA Form, "Phase II Permit Application" (see instructions).

COMMONWEALTH OF VIRGINIA, DEPARTMENT OF ENVIRONMENTAL QUALITY  
TITLE V AIR OPERATING PERMIT APPLICATION GENERAL INFORMATION *continued*

COMPANY NAME	DATE	REGISTRATION NUMBER
General Shale Brick, Inc.	4/29/2005	20447

**Cross-referenced information.** Does this application cross-reference information from other applications or documents?  
☐ YES ☒ NO If "yes," please cite, on a separate sheet, the documents to which reference was made; attach copies of any documents referenced which are not currently on file at DEQ.

**Process description** (also attach a process flow diagram)

**Products and SIC Code or NAICS Code**

General Shale Brick, Inc. is a manufacturer of face brick covered by Standard Industrial Classification (SIC) Code 3251.

RECEIVED

MAY 02 2005

**Process**

Plant 35 "A" Dryer/Kiln (04) and "B" Dryer/Kiln (05)

DEQ-WCRO

**Process Steps**

The kiln completes the brick manufacturing process. These two kilns are identical, parallel units. Waste heat is used for drying.

**Emission units**

"Green" brick are dried and fired in these continuous tunnel kilns. They are fired with coal and natural gas (with propane backup). The products of combustion are exhausted through a common dry lime adsorber (DLA).

**Emission Unit Description**

(Above)

**Alternative Operating Scenarios.**

☐ Check here if you are applying for Alternative Operating Scenarios with respect to part or all of your facility. Please read "Overall instructions for alternative operating scenarios" on the back of this page. Alternative operating scenarios may be described within the form or on duplicate form pages (see instructions), or on separate sheets.

**Acid Rain Sources.**

☐ Check here if your facility is an Acid Rain source subject to the provisions of Rule 8-7 (9 VAC 5-80-360 through 5-80-700) of the Regulations and to Title IV of the Clean Air Act. Please attach the separate EPA Form, "Phase II Permit Application" (see instructions).

**STACK/FUGITIVE EMISSIONS PARAMETERS AND VENT/EXHAUST DATA: (No changes from current permit)**

COMPANY NAME		General Shale Brick, Inc		DATE	4/29/2005	REGISTRATION NO.	20447
UNIT REFERENCE NUMBER	FUGITIVE EMISSIONS? (Yes/No)	Stack Reference Number	VENT/STACK INFORMATION			EXIT GAS PARAMETERS	
			Configuration (Code H)	Height (ft.)	Diameter (ft.)	Velocity (ft./min.)	Volume (acfm)
01	Yes	01	N/A	N/A	N/A	N/A	Ambient
01	No	01	1	33	2 x 2	200	800
04	No	04	1	48	3.0	3,325	23,500
05	No	05	1	48	3.0	3,325	23,500
<p><b>RECEIVED</b></p> <p><b>MAY 02 2005</b></p> <p><b>DEQ-WCRO</b></p>							

**AIR POLLUTION CONTROL EQUIPMENT: (No changes from current permit)**

COMPANY NAME		DATE 4/29/2005		REGISTRATION NUMBER 20447				
General Shale Brick, Inc.		AIR POLLUTION CONTROL EQUIPMENT						
UNIT REF. NUMBER	VENT/STACK NUMBER	DEVICE REFERENCE NUMBER	CONTROLLED POLLUTANT	MANUFACTURER AND MODEL NUMBER	TYPE (USE CODE I OR CODE J)	% EFFICIENCY		
						CAPTURE	DESIGN	ACTUAL
04	04	04	SO <sub>2</sub>	Ohlmann Type - Dry Lime Adsorber	14E Lime	10-30	10-30	10-30
05	05	05	SO <sub>2</sub>	Ohlmann Type - Dry Lime Adsorber	14E Lime	10-30	10-30	10-30
<div style="border: 1px solid black; padding: 5px; display: inline-block;"> <b>RECEIVED</b>  <b>MAY 02 2005</b> </div>								



**PROCESSING, MANUFACTURING, SURFACE COATING, AND DEGREASING OPERATIONS:**

COMPANY NAME General Shale Brick, Inc.

DATE 4/29/2005

REGISTRATION NO.

20447

UNIT REF. NUMBER	PROCESS OR OPERATION NAME (PROVIDE MANUFACTURE OR CONSTRUCTION DATE) AND METHOD OF APPLICATION (if surface coating)?	ARTICLE BEING PROCESSED, MANUFACTURED, COATED, OR DEGREASED	EQUIPMENT MANUFACTURER AND MODEL NUMBER, IF KNOWN; OTHERWISE, TYPE OF EQUIPMENT	MAX. RATED CAPACITY <sup>a</sup>  Units	INPUT OR OUTPUT?
01	Shale Preparation (1973, 1994)	Raw Shale	Steele Primary, Steele hammermill, Link-Belt & Leahy screens, custom conveyors	85.5 ton/hr	Output
04	Plant 35 "A" Dryer/Kiln (1954)	"Green" Brick	Harrop - 8 Wide X 417'	0-9 ton/hr 8-9 ton/hr M <sub>2</sub> = 1000	Input Output
05	Plant 35 "B" Dryer/Kiln (1955)	"Green" Brick	Harrop - 8 Wide X 417'	9-9 ton/hr 8-9 ton/hr M <sub>2</sub> = 1000	Input Output

- 1 If required to support this application or to meet applicable requirements
- 2 Attach complete MSDS for raw materials used or consumed and products manufactured or handled.
- 3 Specify units per hour for each operation in Tons, Pounds, Gallons, etc., except for storage tanks and bins, which should simply show volume of material.

RECEIVED  
MAY 02 2005  
DEQ  
MAY 10 2005

# AIR POLLUTION CONTROL EQUIPMENT - SUPPLEMENTAL INFORMATION: (No changes from current permit)

COMPANY NAME General Shale Brick, Inc. DATE 4/29/2005 REGISTRATION NUMBER 20447

DEVICE REF. NO.	TYPE (Code I)	LIQUID FLOW RATE(gpm) (Codes I-4, 5, 6, 7, 13, 15)	LIQUID MEDIUM (Codes I- 4, 5, 6, 7, 13, 15)	CLEANING METHOD (Codes I-9, 10, 13, 14)	NUMBER OF FIELDS (Code I-8)	NUMBER OF SECTIONS (Codes I- 9, 10)	AIR- TO- CLOTH RATIO (fpm) (Code I-10)	FILTER MATERIAL (Code I-10)	INLET TEMP (EF)	REGENERAT ION METHOD & CYCLE TIME (sec) (Code I-14)	CHAMB ER TEMP. (EF) (Codes I- 11, 12)	RETENTION TIME (sec) (Codes I- 11, 12)	PRESSURE DROP (in. H <sub>2</sub> O) (If Codes I- 3, 4, 5, 6, 7, 10, 13)
04	14E	NA	NA	Vibration	NA	N/A	N/A	Dry Lime	375	Lime Dump & Feed	NA	NA	~2 - 10
05	14E	NA	NA	Vibration	NA	N/A	N/A	Dry Lime	375	Lime Dump & Feed	NA	NA	~2 - 10

RECEIVED

Page 11

MAY 02 2005

DEQ-WCRO

Sheet No. 8

**ANNUAL AIR POLLUTANT EMISSIONS: (Only included emissions that will be modified. Other limits will remain the same as in current permit)**

COMPANY NAME General Shale Brick, Inc. DATE 4/29/2005 REGISTRATION NO. 20447

Emission Inventory Citation Option (Please read the instructions before completing this page.)

I STATEMENT: "I have reviewed my Calendar Year 19 emissions update, and I find that it properly accounts for all emissions units except those specified below. The figures which would otherwise appear on this page are shown in the emissions update specified."  
 The above-referenced emissions data do not agree entirely in regard to unit reference numbers vs. the numbers shown on this form. A list is attached which explains the discrepancies.

UNIT REF. NUMBER(S)	VENT/ STACK NO.	POLLUTANT  Pollutant name	Check if Fugitive	CAS # IF HAP	ACTUAL EMISSIONS Tons/yr.	BASIS OF ESTIMATES (Code K)	EXEMPT FROM FEES?	BASIS FOR BEING EXEMPT FROM FEES (Code L)
01	01	Particulate	✓		15.12	2 2004 Emission Statement		
		PM-10	✓		9.58	2 2004 Emission Statement		
04	04	CO			34.39	2 2004 Emission Statement	✓	1
		HCL		7647010	2.84	2 2004 Emission Statement		HCL
		HF		7664393	1.0	2 2004 Emission Statement		HF
		NOx			12.01	2 2004 Emission Statement		NOx
		Particulate			35.8	2 2004 Emission Statement		Particulate

RECEIVED

MAY 02 2005

DEQ-WCRO

## ANNUAL AIR POLLUTANT EMISSIONS:

COMPANY NAME General Shale Brick, Inc.

DATE 4/29/2005

REGISTRATION NO. 20447

Emission Inventory Citation Option (Please read the instructions before completing this page.)

I STATEMENT: "I have reviewed my Calendar Year 19 emissions update, and I find that it properly accounts for all emissions units except those specified below. The figures which would otherwise appear on this page are shown in the emissions update specified."

I The above-referenced emissions data do not agree entirely in regard to unit reference numbers vs. the numbers shown on this form. A list is attached which explains the discrepancies.

UNIT REF. NUMBER(S)	VENT/ STACK NO.	POLLUTANT  Pollutant name	Check if Fugitive	CAS # IF HAP	ACTUAL EMISSIONS Tons/yr.	BASIS OF ESTIMATES (Code K)	EXEMPT FROM FEES?	BASIS FOR BEING EXEMPT FROM FEES (Code L)
04, Cont'd	04	PM-10			30.78	2 2004 Emissions Statement		
		SO <sub>2</sub>			22.12	2 2004 Emissions Statement		
		VOC			0.74	2 2004 Emissions Statement		
05	05	CO			34.39	2 2004 Emission Statement	✓	1
		HCL		7647010	2.84	2 2004 Emission Statement		
		HF		7664393	1.0	2 2004 Emission Statement		
		NOx			12.01	2 2004 Emission Statement		
		Particulate			35.8	2 2004 Emission Statement		

RECEIVED

	CERTIFICATE NO.	CITY	STATE	DATE OF EXPIRATION	COMPANY NAME
					General Shale Brick, Inc.

DATE	4/29/2005	REGISTRATION NO.	20447
------	-----------	------------------	-------

**Emission Inventory Citation Option** (Please read the instructions before completing this page.)

1. STATEMENT: "I have reviewed my Calendar Year 20\_\_ emissions update, and I find that it properly accounts for all emissions units except those specified below. The figures which would otherwise appear on this page are shown in the emissions update specified."

The figures which would otherwise appear on this page are shown in the emissions update spreadsheet below. A list is attached

The above-referenced emissions data do not agree entirely in regard to unit reference numbers vs. the numbers shown on this form.

which explains the discrepancies.

UNIT REF. NUMBER(S)	VENT/ STACK NO.	POLLUTANT  Pollutant name	Check if Fugitive	CAS # IF HAP	ACTUAL EMISSIONS Tons/yr.	BASIS OF ESTIMATES (Code K)	EXEMPT FROM FEES?	BASIS FOR BEING EXEMPT FROM FEES (Code L)
05, Cont'd	05	PM-10			30.78	2 2004 Emissions Statement		
		SO <sub>2</sub>			22.12	2 2004 Emissions Statement		
		VOC			0.74	2 2004 Emissions Statement		
RECEIVED								
MAY 02 2006								

DEC Form 405 7/27/04

Page 12

DEQ-WCRO

Sheet No. 11

**POLLUTANTS FOR WHICH THIS SOURCE IS MAJOR:**

COMPANY NAME	General Shale Brick, Inc.	DATE	4/29/2005	REGISTRATION NUMBER	20447
--------------	---------------------------	------	-----------	---------------------	-------

Use these tables to indicate the pollutants for which this source is major, pursuant to 9 VAC 5-80-90.D.1. in the Regulations. Criteria pollutants should be listed first; the source is major for a criteria pollutant if it has the potential to emit 100 tons per year (TPY) or more (50 TPY of VOC or NO<sub>x</sub> in serious ozone non-attainment areas). Hazardous air pollutants (HAPs) come next and require CAS numbers; a source is major for HAPs if it has the potential to emit 10 TPY or more of any one HAP, or 25 TPY or more of any combination of HAPs. Other regulated air pollutants, from NSPS or Title VI, are major at 100 tons per year (potential to emit) and should be listed last; see instructions.

Pollutant name	CAS number if the pollutant is a HAP	Actual emissions -- give total amount per year, if known	Potential to emit - give total per year, if known
Particulate (Total)		143.53 tons*	
Hydrogen Chloride (HCL)	7647010	15.39 Tons*	
Hydrogen Fluoride (HF)	7664393	23.12 Tons*	
CO		137.26 Tons*	

RECEIVED

\* Based on 2004 Emissions Inventory

MAY 02 2005

DEQ-WCRO

# APPLICABLE REQUIREMENTS, page 1 of 3:

COMPANY NAME General Shale Brick, Inc.

DATE 4/29/2005

REGISTRATION NUMBER

20447

## REQUIREMENTS WHICH APPLY TO THE SOURCE:

Unit Ref. No.	Brief Description of Applicable Requirement Note: If an applicable requirement includes provisions with a future-effective date, during the permit term, indicate the effective date.	Pollutants	Citation	Voluntary Limit? (Yes/No)	Linkage Number to Next Pages
01, Hammernill & Cage Mill together	Emissions Limit: PM/PM-10 = 10.8 lbs/hr, 7.5 tons/yr * <u>Desire to change the hourly limit to 12.31 lb/hr</u> * <u>Desire to change this yearly limit to 8.55 tons/yr</u>	PM/PM-10	Permit dated 8/2/73, 3/16/94, (which supersedes a 11/24/93 permit) and 6/14/01, 3/01/05	No	N/A
01, Hammernill Only)	Throughput limit = 250,000 tons/yr * <u>Desire to raise this limit to 285,000 tons/yr</u> ✓	PM	Permit dated 8/2/73, 3/16/94, (which supersedes a 11/24/93 permit) and 6/14/01, 3/01/05	No	N/A
01, Hammernill Only)	Emissions Limit: PM/PM-10 = 6.0 lbs/hr, 7.5 tons/yr * <u>Desire to change the hourly limit to 6.84 lbs/hr</u> * <u>Desire to change the yearly limit to 8.55 tons/yr</u>	PM/PM-10	Permit dated 8/2/73, 3/16/94, (which supersedes a 11/24/93 permit) and 6/14/01, 3/01/05	No	N/A
01, (Cagemill Only)	Emissions Limit: PM/PM-10 = 4.8 lbs/hr, 7.5 tons/yr * <u>Desire to change the hourly limit to 5.47 lbs/hr</u> * <u>Desire to change the yearly limit to 8.55 tons/yr</u>	PM/PM-10	Permit dated 8/2/73, 3/16/94, (which supersedes a 11/24/93 permit) and 6/14/01, 3/01/05	No	N/A
04, 05 (Kilns 35 "A" & 35 "B")	Throughput limit = 122,640 tons/yr * <u>Desire to raise this limit to 140,160 tons/yr</u>	PM/PM-10, SO <sub>2</sub> , NO <sub>x</sub> , CO, VOC	Permit dated 8/2/73, 3/16/94, (which supersedes a 11/24/93 permit) and 6/14/01, 3/01/05; and NSR dated 12/30/03	No	N/A
					RECEIVED MAY 02 2005

DEQ-WCRO

APPLICABLE REQUIREMENTS, page 1 of 3:

COMPANY NAME General Shale Brick, Inc.

DATE 4/29/2005

REGISTRATION NUMBER 20447

REQUIREMENTS WHICH APPLY TO THE SOURCE:

Unit Ref. No.	Brief Description of Applicable Requirement Note: if an applicable requirement includes provisions with a future-effective date, during the permit term, indicate the effective date.	Pollutants	Citation	Voluntary Limit? (Yes/No)	Linkage Number to Next Pages
04, 05 (Kilns 35 "A" & 35 "B")	Emissions Limit: NOx = 7.14 lbs/hr, 31.27 tons/yr * <b>Desire to change the hourly limit to 7.39 lbs/hr</b> * <b>Desire to change the yearly limit to 32.38 tons/yr</b>	PM/PM-10, SO <sub>2</sub> , NOx, CO, VOC	Permit dated 8/2/73, 3/16/94, (which supersedes a 11/24/93 permit) and 6/14/01, 3/01/05; and NSR dated 12/30/03	No	N/A
04, 05 (Kilns 35 "A" & 35 "B")	Emissions Limit: VOC = 0.34 lbs/hr, 1.47 tons/yr * <b>Desire to change the hourly limit to 0.39 lbs/hr</b> * <b>Desire to change the yearly limit to 1.68 tons/yr</b>	PM/PM-10, SO <sub>2</sub> , NOx, CO, VOC	Permit dated 8/2/73, 3/16/94, (which supersedes a 11/24/93 permit) and 6/14/01, 3/01/05; and NSR dated 12/30/03	No	N/A

RECEIVED

MAY 02 2005

DEQ-WCRN



## APPLICABLE REQUIREMENTS, page 2 of 3

COMPANY NAME	General Shale Brick, Inc.
--------------	---------------------------

DATE	REGISTRATION NUMBER
4/29/2005	20447

20447

**REQUIREMENTS WHICH APPLY TO THE SOURCE:**

[illegible]

DEQ-WCRO

APPLICABLE REQUIREMENTS, page 3 of 3

DATE	4/29/2005	REGISTRATION NO.	20447
------	-----------	------------------	-------

## PERIODIC MONITORING

[illegible]

20 174

## **ATTACHMENT A**

**Emissions Calculations Using Emission Factors from Testing performed  
in March, 2005 and using proposed Maximum throughput for Kilns 35  
“A” and “B” using 30% Natural Gas and 70% Coal Firing**

RECEIVED  
MAY 02 2005  
DEQ-WCRO

**GENERAL SHALE BRICK, INC. - ROANOKE, VA PLANTS 35 & 36** **REG.# 20447**

STACK 2 - POINT 2

3a. Kiln 35A Fueled by Coal: (SCC 30500313)

Throughput 49056 Tons

**PM-10**

Throughput x Emission Factor (lbs/ton) + 2000

$$49056 \times 1.32 / 2000 = 32.37696 \text{ Tons}$$

**PM-2.5**

Throughput x Emission Factor (lbs/ton) + 2000

$$49056 \times 0.87 / 2000 = 21.33936 \text{ Tons}$$

**PM**

Throughput x Emission Factor (lbs/ton) + 2000

$$49056 \times 1.7 / 2000 = 41.6976 \text{ Tons}$$

**SO2**

Throughput x Emission Factor (lbs/ton) x (1 - Control Efficiency %) + 2000

$$49056 \times 2.48 / 2000 = 60.82944 \text{ Tons}$$

**RECEIVED**

**MAY 02 2005**

**DEQ-WCRO**  
General Shale Brick, Inc. Emissions Calculations - Proposed Maximum Throughput for Plant 35

GENERAL SHALE BRICK, INC. - ROANOKE, VA PLANTS 35 & 36 REG.# 20447

3a. Kiln 35A Fueled by Coal: (SCC 30500313), continued

HF

Throughput x Emission Factor (lbs/ton) + 2000 x (1 - Control Efficiency %)

$49056 \times 0.0047 / 2000 = 0.1152816 \text{ Tons}$

VOC

Throughput x Emission Factor (lbs/ton) + 2000

$49056 \times 0.024 / 2000 = 0.588672 \text{ Tons}$

NOx

Throughput x Emission Factor (lbs/ton) + 2000

$49056 \times 0.51 / 2000 = 12.50928 \text{ Tons}$

CO

Throughput x Emission Factor (lbs/ton) + 2000

$49056 \times 0.8 / 2000 = 19.6224 \text{ Tons}$

RECEIVED

MAY 02 2005

DEQ-WCRO

**GENERAL SHALE BRICK, INC. - ROANOKE, VA PLANTS 35 & 36** **REG.# 20447**

**3a. Kiln 35A Fueled by Coal: (SCC 30500313), continued**

**Pb**

Throughput x Emission Factor (lbs/ton) + 2000

$49056 \times 0.00015 / 2000 \times (1-.9) = 0.0036792 \text{ Tons}$

Throughput 21024 Tons

**3. Kiln 35A Fueled by Natural Gas: (SCC 30500311)**

**PM-10**

Throughput x Emission Factor (lbs/ton) + 2000

$21024 \times 0.87 / 2000 = 9.14544 \text{ Tons}$

**PM-2.5**

Throughput x Emission Factor (lbs/ton) + 2000

$21024 \times 0.87 / 2000 = 9.14544 \text{ Tons}$

**PM**

Throughput x Emission Factor (lbs/ton) + 2000

$21024 \times 0.96 / 2000 = 10.09152 \text{ Tons}$

**RECEIVED**

**MAY 02 2005**

**DEQ-WCRO**

GENERAL SHALE BRICK, INC. - ROANOKE, VA PLANTS 35 & 36 REG.# 20447

3. Kiln 35A Fueled by Natural Gas: (SCC 30500311), continued

HF

Throughput x Emission Factor (lbs/ton) x (1- Control Efficiency %) ÷ 2000

$$21024 \times 0.37 \times (1-0.9) / 2000 = 0.388944 \text{ Tons}$$

VOC

Throughput x Emission Factor (lbs/ton) ÷ 2000

$$21024 \times 0.024 / 2000 = 0.252288 \text{ Tons}$$

NOx

Throughput x Emission Factor (lbs/ton) ÷ 2000

$$21024 \times 0.35 / 2000 = 3.6792 \text{ Tons}$$

CO

Throughput x Emission Factor (lbs/ton) ÷ 2000

$$21024 \times 1.2 / 2000 = 12.6144 \text{ Tons}$$

RECEIVED

MAY 02 2005

DEQ-WCRO

**GENERAL SHALE BRICK, INC. - ROANOKE, VA PLANTS 35 & 36**

**REG.# 20447**

**3. Kiln 35A Fueled by Natural Gas: (SCC 30500311), continued**

**HCL**

Throughput x Emission Factor (lbs/ton) x (1 - Control Efficiency %) + 2000

$$21024 \times 0.17 \times (1 - 0.3) / 2000 = 1.250928 \quad \text{Tons}$$

**SO2**

Throughput x Emission Factor (lbs/ton) x (1 - Control Efficiency %) + 2000

$$21024 \times 0.67 \times (1 - 0.1) / 2000 = 6.338736 \quad \text{Tons}$$

**RECEIVED**

**MAY 02 2005**

**DEQ-WCRO**



**GENERAL SHALE BRICK, INC. - ROANOKE, VA PLANTS 35 & 36** **REG.# 20447**

4a. Kiln 35B Fueled by Natural Gas: (SCC 30500311)

21024 Tons

Throughput

PM-10

Throughput x Emission Factor (lbs/ton) + 2000

$$21024 \times 0.87 / 2000 = 9.14544 \text{ Tons}$$

PM-2.5

Throughput x Emission Factor (lbs/ton) + 2000

$$21024 \times 0.87 / 2000 = 9.14544 \text{ Tons}$$

PM

Throughput x Emission Factor (lbs/ton) + 2000

$$21024 \times 0.96 / 2000 = 10.09152 \text{ Tons}$$

HF

Throughput x Emission Factor (lbs/ton) x (1 - Control Efficiency %) + 2000

$$21024 \times 0.37 \times (1 - 0.9) / 2000 = 0.388944 \text{ Tons}$$

VOC

Throughput x Emission Factor (lbs/ton) + 2000

$$21024 \times 0.024 / 2000 = 0.252288 \text{ Tons}$$

RECEIVED

MAY 02 2005

DEQ-WCRO

General Shale Brick, Inc. Emissions Calculations - Proposed Maximum Throughput for Plant 35

**GENERAL SHALE BRICK, INC. - ROANOKE, VA PLANTS 35 & 36**

**REG.# 20447**

4a. Kiln 35B Fueled by Natural Gas: (SCC 30500311), continued

**NOx**

Throughput x Emission Factor (lbs/ton) ÷ 2000

$$21024 \times 0.35 / 2000 = 3.6792 \text{ Tons}$$

**CO**

Throughput x Emission Factor (lbs/ton) ÷ 2000

$$21024 \times 1.2 / 2000 = 12.6144 \text{ Tons}$$

**HCL**

Throughput x Emission Factor (lbs/ton) x (1 - Control Efficiency %) ÷ 2000

$$21024 \times 0.17 \times (1 - 0.3) / 2000 = 1.250928 \text{ Tons}$$

**SO2**

Throughput x Emission Factor (lbs/ton) x (1 - Control Efficiency %) ÷ 2000

$$21024 \times 0.67 \times (1 - 0.1) / 2000 = 6.338736 \text{ Tons}$$

**RECEIVED**

**MAY 02 2005**

**DEQ-WCRO**

General Shale Brick, Inc. Emissions Calculations - Proposed Maximum Throughput for Plant 35

GENERAL SHALE BRICK, INC. - ROANOKE, VA PLANTS 35 & 36 REG.# 20447

STACK 2 - POINT 2

4. Kiln 35B Fueled by Coal: (SCC 30500313)

Throughput 49056 Tons

PM-10

Throughput x Emission Factor (lbs/ton) + 2000

$49056 \times 1.32 / 2000 = 32.37696 \text{ Tons}$

PM-2.5

Throughput x Emission Factor (lbs/ton) + 2000

$49056 \times 0.87 / 2000 = 21.33936 \text{ Tons}$

PM

Throughput x Emission Factor (lbs/ton) + 2000

$49056 \times 1.7 / 2000 = 41.6976 \text{ Tons}$

SO2

Throughput x Emission Factor (lbs/ton) x (1 - Control Efficiency %) + 2000

$49056 \times 2.48 / 2000 = 60.82944 \text{ Tons}$

RECEIVED

MAY 02 2005

DEQ-WCRO  
General Shale Brick, Inc. Emissions Calculations - Proposed Maximum Throughput for Plant 35

**GENERAL SHALE BRICK, INC. - ROANOKE, VA PLANTS 35 & 36**

**REG.# 20447**

**4. Kiln 35B Fueled by Coal: (SCC 30500313), continued**

**HIF**

Throughput x Emission Factor (lbs/ton) x (1 - Control Efficiency %) + 2000

$$49056 \times 0.0047 / 2000 = 0.1152816 \text{ Tons}$$

**VOC**

Throughput x Emission Factor (lbs/ton) + 2000

$$49056 \times 0.024 / 2000 = 0.588672 \text{ Tons}$$

**NOx**

Throughput x Emission Factor (lbs/ton) + 2000

$$49056 \times 0.51 / 2000 = 12.50928 \text{ Tons}$$

**CO**

Throughput x Emission Factor (lbs/ton) + 2000

$$49056 \times 0.8 / 2000 = 19.6224 \text{ Tons}$$

**RECEIVED**

**MAY 02 2005**

**DEQ-WCRO**

## **ATTACHMENT B**

**Average "Actual" Emissions based on Emission Statements from  
Calendar Years 2002, 2003 and 2004**

RECEIVED

MAY 02 2005

DEQ-WCRO

### AVERAGE ACTUAL EMISSIONS

ES YEAR	KILN	NOx (tons/yr)	VOC (tons/yr)
2002	35 "A"	10.5	0.7
2002	35 "B"	8.7	0.6
2003	35 "A"	10.15	0.7
2003	35 "B"	10.15	0.7
2004	35 "A"	12.01	0.74
2004	35 "B"	12.01	0.74
Average 35 "A":		10.89	0.71
Average 35 "B":		10.29	0.68
TOTAL		21.18	1.39

RECEIVED  
MAY 02 2005  
DEQ-WCRO